

BONDS AS INVESTMENT SECURITIES

THE ANNALS

OF THE

American Academy of Political and Social Science

ISSUED BI-MONTHLY

VOL. XXX, No. 2 SEPTEMBER, 1907

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CONTENTS

	PAGE
THE PROPER BASIS OF BOND ACCOUNTS WHEN HELD FOR INVESTMENT	Charles E. Sprague 1
THE VALUATION OF BONDS ON AN INCOME BASIS.....	Charles E. Sprague 9
BOND REDEMPTION AND SINKING FUNDS	C. M. Keys 21
VALUE OF A BOND DEPARTMENT TO A BANK OR TRUST COMPANY	George B. Caldwell 38
TABLES OF BOND VALUES—THEORY AND USE.....	Montgomery Rollins 41
ESSENTIAL RECITALS IN THE VARIOUS KINDS OF BONDS... <i>Andrew Squire</i> 56	
ORGANIZATION AND MANAGEMENT OF A BOND HOUSE... <i>William Foley</i> 65	
BOND SALESMANSHIP	<i>William Foley</i> 72
SELLING AMERICAN BONDS IN EUROPE	<i>Charles F. Speare</i> 77
METHODS OF AUDITING AND ACCOUNTING IN A BOND HOUSE	<i>Charles S. Ludlam</i> 92
BONDS AS ADDITIONAL BANKING RESERVE	<i>William C. Cornwell</i> 100
RAILROAD BONDS AS AN INVESTMENT SECURITY..... <i>Floyd W. Mundy</i> 120	
ELECTRIC INTERURBAN RAILWAY BONDS AS INVESTMENTS	<i>Edgar Van Deusen</i> 144
REAL ESTATE BONDS AS AN INVESTMENT SECURITY..... <i>George A. Hurd</i> 158	
INDUSTRIAL BONDS AS AN INVESTMENT..... <i>Lyman Spitzer</i> 182	
THE PHYSICAL CONDITION OF A MUNICIPALITY ISSUING BONDS	<i>Harry E. Weil</i> 192
MUNICIPAL BOND ISSUES EXPLAINED	<i>Harry E. Weil</i> 197
PROTECTION OF MUNICIPAL BONDS	<i>Park Terrell</i> 204
CLASSIFICATION AND DESCRIPTION OF BONDS	<i>F. A. Cleveland</i> 208
BONDS IN THEIR RELATION TO CORPORATION FINANCE... <i>F. A. Cleveland</i> 220	

PHILADELPHIA

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE

36th and Woodland Avenue

1907

The ACADEMY is under special obligations to Walter Henry Hull, Ph.D., of the University of Chicago, for his co-operation in editing this volume. The publication was undertaken at his suggestion, he decided upon the titles of the papers, and gave the ACADEMY the names of the most qualified authors. He, also, corresponded with the writers to secure their contributions.

Although this volume is as large as it is practicable to make the publications of the ACADEMY, there are many phases of the subject of bonds not discussed in this work. Possibly the topics omitted may be treated in a subsequent issue of the ANNALS. It is believed that the twenty papers here published constitute an instructive contribution to an important branch of applied economics.

THE EDITOR.

THE PROPER BASIS OF BOND ACCOUNTS WHEN HELD FOR INVESTMENT

By CHARLES E. SPRAGUE, PH.D., New York,
President, Union Dime Savings Institution, and Author of "The Accountancy
of Investment."

A bond is a complex promise to pay,

1. A certain sum of money at a future time; this is known as the principal, or par.

2. Certain smaller sums, proportionate to the principal, and at various earlier times, these are usually known as the interest, but as they do not necessarily correspond to the true rate of interest, it will be better to speak of them as the *coupons*.

The sale of a bond is the transfer of the right to receive these various sums at the stipulated times. They are never worth their face, or par, until these times arrive, but are always at discount. The principal is never worth its face until its maturity; the coupons are never worth their face until their maturities. Yet while both principal and coupons are always at a discount, the aggregate may easily be worth more than the principal alone; and it is the aggregate, principal and coupons, which is the subject of the bargain.

The purchaser, in fixing the price which he is willing to pay, is guided by several considerations:

1. The amount of the principal.
2. The amount of each coupon.
3. The length of time to which the principal is deferred.
4. The number of coupons.
5. The times of their payments.
6. The rate of interest which can be earned upon securities of a similar grade.

He discounts the principal and each coupon at compound interest at such rate and for the times which they respectively¹ have to run and the sum of these partial present-worths is the value of the bond. If he can buy at a price below this value he will receive a

¹The abbreviated spelling is followed in this paper at the special request of the author.—THE EDITOR.

higher rate of interest than he anticipated; if he is required to pay more than this price, he refuses to buy.

As he cashes each coupon, he receives what he paid for it plus interest at the uniform rate; thenceforward he earns interest on a diminisht investment so far as coupons are concerned, but on an increast investment as to principal. If each coupon is less than the total earning during its period there is an increase in the total investment; if it is greater, there is a surplus which operates to reduce the investment or to amortize the premium.

We have then two fixt points in the history of the bond: the original cost or money invested, and the principal sum or par, or money to be received at maturity. Between these two points there is a gradual change; if bought below par, the bond must rise to par; if above, it must sink to par; these changes being the effect of interest earned and coupons paid. At any intermediate moment there is an *investment-value* which can be calculated, and which is just as true as the original cost and the par. In fact these latter are merely cases of investment-value; the investment-value at the date of purchase is cost; the investment-value at the date of maturity is par.

The gradual change in the investment is ignored by some investors, who either use the original cost all thru, or the par. In the former case they suppose that the investment value remains at its original figure until the very day of maturity and is instantly reduced to par, by a loss of all the premium or a sudden gain of the discount. Those who use par as the investment-value assume also that there is this sudden change of value but that it took place at the instant of purchase.

These treatments are manifestly fictitious and unreal and only resorted to because the labor of computing intermediate values is shunned. Experience would tell us, if theory did not, that there is no such violent change. In any complete system of bookkeeping (popularly called double entry) the accounts representing assets and those representing profits and losses are mutually dependent. You cannot arbitrarily change a value without affecting and distorting the general profit-and-loss account. A year's actual gain might be swept away, on paper, by the investment, perhaps a very advantageous one, in a security at a premium.

The disappearance of premium being regarded as a consump-
(194)

tion of capital, instead of a return requiring reinvestment, the entire coupon is looked upon as income and the impairment of capital becomes actual. In case of a sale, the true profit or loss is unknown, the proceeds being compared either with a value which has past into history or one which is yet to be realized—not with a value which is adjusted to the present. The error in these faulty methods of accountancy arises from the assumption that interest is only earned when specifically collected in cash—that the coupon is exactly the measure of the interest earned.

When the bond is at par this is true: the coupon and the interest are co-extensiv. But if there is any premium or discount we must disregard the distinction between principal and interest and consider that the original investment goes on increasing at compound interest, period by period, but diminisht by the coupons and the final redemption. In other words, we must think of the coupons and the principal as merely instalments, the periodic instalments and the final one, but all of the same nature.

A familiar instance of interest earnings not represented by specific cash payment but by accretion is the discount of a note. If a three-months' note for \$1,000 is discounted at 6 per cent, the investment is \$985, which by accretion becomes \$1,000. Altho interest is not mentioned, the purchaser earns \$15, or more than 6 per cent, on his investment of \$985. If the note were payable three years from now instead of three months, he would expect to earn compound interest and would pay, perhaps, \$837.48. His earnings on this investment, compounded semi-annually, would bring the investment up to \$1,000 in three years. This note would be equivalent to a bond without coupons; no interest is stipulated for, but interest is actually earned. If coupons were added, the bond would simply be worth so much more, according to their value.

I therefore regard the cost and the par value, while correct at the beginning and at the end of the period of ownership, as entirely incorrect during the interim. The true standard is the present worth, compound-discounted, of all *recipients*, or sums of cash to be received whether called coupons or principal.

These three values resemble three tenses in grammar: the cost is the past, what *was* paid; the par is future, what *will be* received; the investment value is the *present*. There is a fourth value, which may be considered as in the potential mood; what *might be* obtained

on sale, at the present time. This is the *market value* and is a matter of judgment, opinion and inference. Some bonds are bought and sold so frequently that there is a current quotation which is fairly reliable; other issues, in which dealings are rarer, are valued by analogy with those whose conditions are nearest like them.

It may be observed here that the market value depends *solely* on the rate of interest which prevails on the particular grade of security. This has sometimes been doubted; even the courts have sometimes assumed that there could be a depreciation, regardless of interest-rate, for the "badness" of the investment; or a premium paid, regardless of interest-rate, for the "excellence" of the security. It is necessary to analyze this view which I regard as essentially unsound.

No one buys a bond by reason of admiration, as he would buy a painting or a statue. He is dealing solely in earnings, that is to say, in interest. He is impelled by no other motiv than that of receiving his money back with the increment which shall accrue in the meantime. If an investment is offered him which is superlatitively "good," but which returns only what he originally invested without any increment, he will certainly refuse it.

The rate of interest, however, is affected by the risk of loss. Every rate of interest may be regarded as composed of two parts: one, a compensation for the use of the capital; the other, a premium of insurance against chances of loss. Thus an interest-rate of 5 per cent per annum may be conceived as

$$\begin{aligned} & 3\% \text{ riskless interest or compensation for use of capital;} \\ & + 2\% \text{ premium for insurance against loss.} \end{aligned}$$

Another and safer investment, where the chance of loss is twice as remote, would rate at 4 per cent:

$$\begin{aligned} & 3\% \text{ riskless interest;} \\ & + 1\% \text{ premium of insurance.} \end{aligned}$$

The chance of loss may be very remote, it may be imaginary, but it is worth insuring against. Similarly, the chance of any one house being destroyed by fire is remote, but men willingly pay a part of the income of the house to secure themselves against it. The loss feared in the case of investment is not merely direct loss, or failure to return, but losses by delay, by difficulty of collection, by expense of litigation, by the very feeling of suspense which acts as a penalty. An opinion that the loss is possible is exactly as

potent as the reality, in producing a loading of the rate on account of risk-insurance, provided this opinion is sufficiently widespread.

A lowering of the grade of security means an increase of the insurance-premium and hence of the rate of interest. This may happen by deterioration of the physical property which underlies the investment, by bad management, by accidental loss of custom and in various ways, preventable or non-preventable.

The other element in the interest-rate, the value of the use of capital, also fluctuates, as in times of capital famin or capital glut, in new countries as against old countries, and it is difficult to decide how much of the rate is due to this source and how much to insurance. But taking the rate as a whole, the question is, does the price of a bond ever vary except thru the interest-rate?

We may test this by experiment. Taking some railroad company which has fallen into misfortune and whose $3\frac{1}{2}$ per cent bonds, once at a premium, are now below par, so that their present market price is equivalent to discounting all the recipiends at 4.50. If this depreciation is not entirely a consequence of this high rate of discount, if there is an intrinsic depreciation, it must apply to all obligations of the road. But if the same road now puts out bonds bearing 5 per cent interest under the same mortgage it will invariably be found that these will sell at a premium, on approximately the same ($4\frac{1}{2}$) basis.

We may deduce the following conclusions:

1. There is no sanctity in par; it is merely a convenient round sum to be received in the future.
2. There is no necessary identity between the size of the coupons, or periodical instalments, and the rate of interest.
3. All the recipiends (coupons and par) must be sold below par; their aggregate may amount to more or less than par or to exactly par.
4. The rate of interest is affected by the degree of belief in the certainty and punctuality of the payments; and this rate determines the price.

It may further be stated that no investment is so insecure that, theoretically, it will not be discounted at *some* rate. A \$1,000 bond secured by something which must be annihilated at the end of five years but bearing 30 per cent semi-annual coupons would doubt-

less find purchasers at better than \$400 and would be an advantageous purchase.

The market value is of absolutely no importance to an investor who does not contemplate changing the investment but will hold it to maturity. The ups and downs of the market do not in the least affect the value to him; if he were to record these fluctuations it would be merely to substitute an undulating zig-zag for the natural and logical curve of the investment value, since in either case the point of final rest is par at maturity. Such a case is that of a trustee who, under the decisions of the courts of New York, is bound to keep his trust intact, carrying the investments at their investment value and re-investing all in excess.

But to the investor who has the privilege of selling and replacing his investments, acquaintance with market values is highly advantageous. It is his guide to the advisability of making such changes and of forecasting the future. It is his duty therefore to watch the fluctuations of the market and, in a perfectly legitimate way, seek to improve his income, without impairing the factor of safety. A large investor will not endeavor to have all his investments at the same grade; he will probably have at the same time some capital out at high rates and some at lower. The money at high rates is not quite so secure, not quite so available, and requires more effort for its collection. That at lower rates is nearer to absolute freedom from risk and from labor; it almost automatically collects its own income. On some of the high-interest investments the security may have improved in the course of time; the credit of the municipality or the revenue of the corporation may have so risen that the 4 per cent bond which was bought at par is now selling at a premium which, if a further investment were made, would yield only $3\frac{1}{2}$ per cent. If the bond has still ten years to run, he may sell at a profit of 4 per cent and thus have \$104 to re-invest in some other 4 per cent security.

Altho the market price is of great utility, I do not admit that it can be introduced into the accountancy of investment. It is not an act nor a fact of the business; it is a statement of what *might* be done. When the bond just mentioned has gone up to 104, the owner has not gained a penny. He merely has an opportunity presented; if he lets it pass, the opportunity has not had the slightest effect on his financial status.

Unless the accounts are kept on the investment-value basis, he cannot even tell whether a certain price would result in a loss or a gain. If his books are kept on the basis of par, every sale above par will appear as a gain, tho it may be a losing bargain; while a comparison with original cost will be equally delusiv.

Where liquidation, entire or partial, is a possible contingency, as in a savings bank or an insurance company, market values are an appropriate basis for an estimate of solvency. It must be remembered, however, that solvency for *going on* and solvency for *winding up* are different matters and that in a going concern, going insolvency is primarily to be considered.

My conclusions as to the proper basis of accountancy for an investor are as follows:

1. Neither original cost nor ultimate par is a proper permanent basis, but the bond should enter at cost, which is a fact, and should go out at par, which is another fact.
2. During the interim the reduction from cost to par should take place gradually by the processes of amortization and accumulation at the basis-rate of true interest.
3. Information should be obtained of the fluctuations in market value, but these should not be carried into the accounts as actualities.
4. A list of market values should accompany the balance sheet of any concern which may be subject to liquidation for the purpose of showing its ability to liquidate.

From the point of view of the banker, the dealer in bonds, which to him are primarily merchandise and only incidentally investment, the conditions of a bond purchase are somewhat different from those outlined above. The banker is entitled to get interest at a fair rate on his current investment, whether the rate secured by his customer is high or low.

This is one of the expenses of his business and the coupons are a help in reducing it. I am of the opinion that the proper method is to treat the bond or lot of bonds as a whole; to debit the account first with the cost, then with interest actually paid to carry it by means of loan capital; to debit also interest on the balance or margin being own-capital, at the rate which could have

been obtained by loaning it elsewhere. As the coupons mature, their amount is credited and the resulting balance, which is net cost, must be exceeded in the sale to produce any profit. This balance forms the principal of the charge for the next period, and thus the banker receives compound interest.

This procedure, tho apparently different, is precisely analagous to that of the investor. The accretion of interest is charged up and the coupon credited off in both cases. With the investor the rate of interest is predetermined at the time of purchase; with the banker the rate is an actuality, frequently paid in cash, but always referable to a fair standard.

THE VALUATION OF BONDS ON AN INCOME BASIS

By CHARLES E. SPRAGUE, PH.D., New York,
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Tables."

Effect of premium or discount upon income basis—Nominal and effectiv rates of interest—Arrangement of tables—Experimental test of correctness—Valuation by discounting—Use of logarithms—Formula for values—Extent and closeness of tabular values—Intermediate times—"Flat"; "and interest"—Intermediate incomes—Correction of approximates—The "½ rule"—Intermediate nominal rates—Quarterly bonds—Annual bonds—Optional date of redemption—Redemption above or below par—Serial bonds—Finding the basis—The sinking fund theory.

If a bond for \$1,000 is purchased at par and the interest is \$50 per annum, it is evident that the income-basis to the investor is 5 per cent exactly, irrespectiv¹ of when the bond matures. If, however, the price is in the slightest degree greater than par, the interest on the capital invested is at a less rate than 5 per cent. For example, if the price paid is \$1,250, the income-basis cannot be more than 4 per cent, for \$50 is only 4 per cent of the capital invested. But this is not all: besides the reduction of rate produced by increase of principal, there is another cause at work: the \$250 premium will have vanisht by the date of maturity, for the obligor will only pay the \$1,000. The \$250 must be repaid from the interest, reducing the rate, or income basis, still more.

In the same way it may be shown that if *less* than par were invested, the income-basis, or effectiv rate, would be *greater* than the nominal or cash rate, for two reasons: first, because the principal is less, and therefore \$50 is a higher percentage of it; second, because of the increment which will be realized as the bond rises to par at maturity.

Thus there may be two different rates of interest on a bond, the nominal rate and the effectiv rate: or the cash rate and the income-basis. When the bond is at a premium, the cash rate is the higher; when the bond is below par, the cash rate is lower.

¹The abbreviated spelling is followed in this paper at the special request of the author.—THE EDITOR.

The cash-rate is based on par, the income-basis on the amount of the investment at the time being.

Computations have been made of the price at which a bond should be bought to yield at a certain income-basis, the following facts being known: the nominal rate per annum, and how frequently payable; the effectiv rate of income-basis required; and the length of time the bond has to run. These results are publisht in tables which are usually founded on half-yearly payments of interest, that being the prevalent custom. They present the values either to the nearest cent on one hundred dollars or to the nearest cent on one million dollars, the latter serving for more exact calculations than the former and on greater amounts of principal.

Before treating of the method of computing these tables we will take a result as given by them and test the assertion that it does actually yield a certain income-basis.

A bond for \$1,000,000, 5 per cent cash interest, payable semi-annually, one and a half years to run, income basis 4 per cent. We turn to the tables and find from the smaller tables that the value of \$100 would be \$101.44. The more extended tables give the value of \$1,000,000 as \$1,014,419.42. We have now to see whether the investor who pays that price does actually receive 4 per cent on his investment.

The successiv values as given by the tables are:

1½ years	\$1,014,419.42
1 year	1,009,707.80
½ year	1,004,901.96
At maturity	1,000,000.00

These values are all susceptible of the same proof.

Commencing with \$1,014,419.42

the interest for 6 months at 4 per cent on the sum is.. \$20,288.39

But the value of the coupon is 25,000.00

and there is an excess of \$4,711.61

This is not income at all, but a repayment of part of the premium 14,419.42

which is now reduced to \$9,707.81

This agrees with the result from the table except one cent, the result of neglected fractions of a cent.

Taking the value \$1,009,707.81

2 per cent interest of which is \$20,194.16
we subtract this from 25,000.00

and have an excess of \$4,805.84
which reduces the value of the bond to 1,004,901.97

which again agrees with the table within a cent.

Repeating the process \$20,098.04

from 25,000.00

\$4,901.96

This completely exhausts the premium by the process known as *Amortization*.

Had the original figures been extended to mills instead of cents the discrepancy of one cent would have disappeared.

Had the figures been taken from the shorter table, substantially the same result would have been attained.

101.44	1½ years
2.03	
2.50	
—	.47
	—
100.97	1 year
2.02	
2.50	
—	.48
	—
100.49	½ year
2.01	
2.50	
—	.49
	—
100.00	maturity

Any value given in any of the tables may be tested by this
(203)

process; taking the value for one half-year earlier and then amortizing down.

Thus the cash-interest is a constant percentage of par, while the income is a constant percentage of the diminishing principal actually remaining invested; such diminution or amortization being effected by using the excess of cash-interest over effectiv income.

Exactly the opposit course is taken in case of a bond below par; the difference between the nominal and the effectiv interest adds to the value and by accumulation brings it to par at maturity.

These tables might have been computed (with considerable labor) by simple arithmetic. It is only necessary to discount the total to be received, including the coupon.

Thus, the 5 per cent bond already mentioned calls for the payment

at maturity of	\$1,025,000.00
Dividing this by 1.02, we have as the value six months	
earlier	1,004,901.96
Adding	25,000.00

	\$1,029,901.96
and, again dividing by 1.02, we get	1,009,707.80
Again adding	25,000.00

	\$1,034,707.80
divided by 1.02	1,014,419.42

These results again agree with those given in the tables. This discounting-method might be practically used for a few periods if the income rate is a very complicated one, not found in the tables, but it would be very tedious if continued for, say, 100 periods or fifty years.

By the use of logarithms a value for a large number of periods may be found almost as quickly as for a small number. Only one of the necessary factors requires the use of logarithms; the rest of the operation is easier by simple multiplication and division.

We will give the algebraic formula for obtaining the premium or discount, using the following notations: i the rate of interest per
(204)

period expressed decimaly; n , the number of periods; c , the cash income of \$1, or nominal rate. Then the value of a \$1 bond is

$$1 + \frac{c-i}{i} \times \left(1 - \frac{1}{(1+i)^n} \right)$$

If $c > i$, the result will be greater than unity; if $c > i$, the result will be less than unity.

The only quantity which necessitates the use of logarithms is $\frac{1}{(1+i)^n}$ or, as it might be written $(1+i)^{-n}$. This is the present worth of \$1 payable n periods hence at the rate i . When this has been accurately obtained, the rest is easy. This present worth might also be found from tables of compound interest.

The bond-tables vary as to their range of time, of cash rate, of income basis. As to time, they usually give each half-year up to 50 years, sometimes extended to 100 by jumps of 5 years or $2\frac{1}{2}$ years. As to nominal, or cash rate, they usually comprise the following rates, or the most of them: 2 per cent bonds, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 3.65, 4, $4\frac{1}{2}$, 5, 6, 7. They do not usually cover the odd rates which sometimes occur, such as 3.60, 3.75, or 3.80 per cent bonds. These are easily derived. As to income-basis, some of them advance by eighths, thus, 3, $3\frac{1}{8}$, $3\frac{1}{4}$, $3\frac{3}{8}$, $3\frac{1}{2}$, $3\frac{5}{8}$, $3\frac{3}{4}$, $3\frac{7}{8}$, 4 per cent basis, etc. Other tables advance by tenths of 1 per cent, like 3, 3.10, 3.20, 3.30, 3.40, etc. Others still advance by twentieths, 3, 3.05, 3.10, 3.15, 3.20, 3.25, etc., and this is the closest regular advance given by any tables yet published. In all of these particulars, intermediates may be interpolated; intermediate times, intermediate cash-rates, intermediate bases of interest. The means of interpolation will now be explained.

The above examples refer to entire periods, not to times comprising odd months or days. When the time falls in the midst of a term or period, there are two ways of stating the price: "flat," or "and interest." The former includes the interest which, at cash-rate, has accrued since the last interest-day; the latter excludes this accrued interest.

If in the example above the time were one year and three months instead of one year and six months, the price would be \$1,024.563.61 flat

or 1,012,063.61 and interest
 As the accrued interest for 3 months at 5
 per cent is 12,500.00
 it is evident that these two express the same values.

The flat price may be found by multiplication and the price ex-interest by proportion.

If we take the value \$1,014,419.42
 and to it add interest thereon for 3 months at 4
 per cent 10,144.19

we have the flat price \$1,024,563.61

If we take a value halfway between \$1,014,419.42
 and the one-year value 1,009,707.80

We have the and-interest price \$1,012,063.61

The latter method is generally considered the simpler. It consists in proportioning the amortization for the period to the time elapsed: $\frac{1}{180}$ of the six months amortization being supposed to "run off" each day. The "360-day" rule is now the only one used for accrued interest, having been adopted by the leading brokers in New York a few years ago.

It may be remarked that this rule for intermediate dates rests upon custom and convenience, but is not absolutely correct, nor equitable as between buyer and seller. The buyer advances the accrued interest, which is like a non-interest-bearing loan to the seller for the remainder of the term. The buyer might claim, and perhaps legally, that the price is the present worth for the unfinished time, obtained by discount. For times less than six months this is frequently done. Thus, a three-months' value of the same bond by the ordinary brokers' rule would be

\$1,002,450.98 and interest
 or 1,014,950.98 flat

By discount, it would be \$1,025,000 \div

1.01, or 1,014,851.49 flat
 a difference of 99.49

The buyer would support his claim by the following calculation:

(206)

If I invest	\$1,014,851.49
I am entitled to 1 per cent on my money for the quarter, as our contract calls for a yield to me at 4 per cent per annum; 1 per cent is	<u>10,148.51</u>
and I receive exactly the amount	<u>\$1,025,000.00</u>
But if I invest	\$1,014,950.98
Interest on that is	<u>10,149.51</u>
and I ought to receive	<u>\$1,025,100.49</u>
What I do receive is only	<u>1,025,000.00</u>
and I lose	<u>\$100.49</u>

Neither of these methods gives to both buyer and seller the same rate of income. The exact value for that purpose would be \$1,014,901.23, about halfway between the two results by multiplication and division; and this would yield to each a rate *equivalent* to 2 per cent per half year; not 1 per cent, but .995049 per cent.

A basis of income intermediate to those given in the table may often be required. For example, if the table gives the values at 2.50 and at 2.60, it may be desired to find the value at 2.54 or 2.55 or 2.56. The midway rate, 2.55, is more frequently needed than any other. Both in the shorter and the more extended tables these intermediates are first found approximately by simple proportion. A 7 per cent bond for 50 years at a 2.50 per cent basis

is quoted at	228.03
a 2.60 basis at	222.72
the difference	5.31
represents 10 points;	
5 points would be	2.65
therefore the value for a 2.55 basis would be.....	225.375
approximately.	

To correct this, we must set down three successiv values; and in two columns alongside, their differences and the difference of these differences, called a "second difference."

	First Difference	Second Difference
2.50 per cent	228.03	5.31
2.60 per cent	222.72	5.12
2.70 per cent	217.60	

The correction always consists in *subtracting one-eighth of the second difference* from the approximate value.

Approximate value	225.375
One-eighth of .19 .....	.024
Corrected value	225.351

This value would in practice be "rounded off" to 225.35. The actual value extended to 6 decimals is 225.351754.

This correction need only be applied to high values; for less than 23 years there can be no second difference large enough to affect the result. The extended tables have, or should have, auxiliary tables for correcting the approximate values exactly or within a cent or two, and this may be done without even the trouble of the differencing process. The " $\frac{1}{8}$ " rule for correcting the short tables was devised by the writer and has not, so far as he knows, appeared before in print.

We have now explained the method of interpolating odd times and odd bases, in each of which a fair approximation is obtained by merely dividing the interval into equal parts. When we come to the cash rate, no correction is needed; the 5 per cent bond on any income basis is exactly midway between the 4 per cent and the 6 per cent. Any bond at an odd rate may be derived from the values of the next regular rates above and below. Thus, on a 2.50 basis for 25 years, the value of a $4\frac{1}{3}$ per cent bond might be found thus:

5 per cent bond	146.27
4 per cent bond	127.76
Difference	18.51
$\frac{1}{3}$ difference	6.17
which, added to the 4 per cent, gives	133.93

as the value of a $4\frac{1}{3}$ per cent bond, if such a bond were issued.

Some bonds provide for paying interest every quarter instead of every half-year. If we take two bonds, both nominally 5 per cent per annum, the one quarterly and the other semi-annually; the former, *on the same income-basis*, is worth a higher premium. Let us suppose that each is on a 4 per cent *semi-annual basis*; it

will not do to have one basis quarterly and the other semi-annual, for these would not be the same. The bond being supposed to be one for \$1,000,

the quarterly coupon is	\$12.50
The holder of the coupon has the use of this during the other	
quarter, and this is worth, at 4 per cent .....	.12
At the end of the half-year there is another coupon.....	12.50

so that this bond pays \$25.12
 as against the other's 25.00
 that is 5.025 per cent instead of 5 per cent. As .025 equals $\frac{1}{40}$, we must add to the value at 5 per cent $\frac{1}{40}$ of the difference between the 5 per cent and the 6 per cent values.

Let us try this on a 10-year value. We find opposit the 4 per cent basis

in the 6 per cent table	\$1,163.51
in the 5 per cent table	1,081.76

Difference	\$81.75
$\frac{1}{40}$ of which is	\$2.04
and this added to	1,081.76

gives the value of the quarterly bond \$1,083.80
 on a basis of 4 per cent *semi-annual*.

The mistake is often made of giving the basis as well as the cash rate quarterly; for example, expecting the bond whose nominal rate is 5 per cent quarterly to yield an income-basis of 4 per cent, also quarterly. To yield that basis it would be worth only \$1,082.09. But this would be of no value for purposes of comparison with the half-yearly bond; the basis must be *identical* in all respects. Annual bonds are *less* valuable on a given income-basis than semi-annual, and the reasoning is much the same.

Both for quarterly and for annual bonds, some bond-tables give multipliers for finding how much should be added or subtracted to compensate for the change in time of interest payment.

Some bonds have a double date of maturity, they are positively payable at a certain date, but redeemable at an earlier date, at the

option of the borrower. What date is then to be taken as the date of maturity?

In all such cases the investor should, in order to be safe, not reckon upon the alternative which is in his favor, but on the one which is adverse. His interests and those of the borrower are naturally antagonistic, and the option will be exercised in favor of the one holding it.

Consequently, the investor who pays a premium must expect the bond to be called in at the earlier date, but he who buys at a discount must expect to hold to maturity. If it does not turn out that way, there is an incidental gain, due to one of two causes: either the general rate of interest has lowered or the security for this particular loan has increased, bringing it into a higher grade, that is to say, lower interest. In the former case, the investor's good fortune is offset by the less favorable chance for re-investment; in the latter case, he has a real profit.

Sometimes the option of redemption exists, but not at par. A bond may be absolutely payable in 50 years, but redeemable after 25 years at 105. The principle of expecting the worse alternative is here applied in a different manner. First, assuming the longer period to rule, ascertain whether, at the redemption date, the amortization will have brought the bond below 105 or not. If the price on the same income basis will be below 105 at the redemption date, then the redemption should be assumed to fail of accomplishment and the bond will run for the full fifty years. But if the sum invested is so much greater that amortization will not bring it below 105 at the twenty-fifth year, then the bond is a 25-year bond for 105, not a 50-year one for 100.

Bonds are often issued in serial form. They do not come due all at one time, but so many each year; for example, an issue of \$10,000 payable \$1,000 in 10 years, \$1,000 in 11 years, \$1,000 in 12 years, and so on, the last being payable 19 years from the date of issue. A very common but erroneous manner of valuing such a series is to consider it all payable at the "average date," which would be 14½ years, the arithmetical mean between 10 and 19. By adding together the values at some given income-basis it will be seen that this is incorrect; it is unjust to the buyer if above par, and unjust to the seller if below par. The only correct way is to

take from the tables the values for the respective time each bond has to run and add all these together; what is known among brokers as "separate maturities."

The question, so far, has been: what is the value at a certain basis? The converse question, What is the basis of a certain value? cannot be solved by any direct mathematical process, but the actuarial writers give approximate formulas which are rather complicated. The writer has discovered a simple method of gradual approximation which is now published for the first time.

Let us give the name of trial-divisor to the difference between the values of a 4 per cent and a 5 per cent bond on the same basis and for the same time; or, what is the same thing, between a 5 per cent and a 6 per cent, or a 3 per cent and a 4 per cent; always 1 per cent difference in the nominal rates.

Assume arbitrarily for trial any income rate; the nearer to the true rate as indicated by the tables the less the work of approximation. Find the trial-divisor at this trial rate. Divide the given premium (or discount) by this trial-divisor. The quotient is to be subtracted from the nominal rate if the bond is above par, or added to it if below par; the result will be an approximate rate which will be nearer the truth than the trial rate, being too great when the trial rate is too small and *vice versa*. This approximate may be used as a new trial rate and will result in a still closer approximation.

For example, take a 4 per cent bond, twenty-five years to run, selling at 114.00 what is the basis?

Nominal rate 4, premium 14, let 3 per cent be the assumed rate. By any tables a 4 per cent bond at a 3 per cent basis for twenty-five years is worth 117.50 and a 5 per cent bond is worth 135.00 The trial-divisor is therefore 17.50 $14 \div 17.50 = .80$; $4 - .80 = 3.20$. 3.20 is therefore a nearer approximation than 3 per cent.

We now assume 3.20 as a trial rate. Trial-divisor for 3.20. $130.81 - 113.70 = 17.11$. $14 \div 17.11 = .818$. $4 - .818 = 3.182$.

We now assume 3.18 as a trial rate. 17.31 being the trial-divisor for 3.10 and 17.11 that for 3.20, it follows that 17.15 is the trial-divisor for 3.18. $14 \div 17.15 = .816$. $4 - .816 = 3.184$. As
(211)

3.182 is too small and 3.184 is too great, it is safe to take the rate as between the two and nearer to 3.184. Without the use of more extended tables, it is safe to say that the basis is 3.18 to the second decimal.

Had more extended tables been used, with auxiliary differences, this mode of approximation would have been unnecessary, altho it might have been applied. The value at 3.18 would be given directly as 114.0125+, and by arithmetical interpolation the rate required would appear as 3.18367.

The re-investment of the instalments of amortization has nothing to do with the fact that a certain effectiv rate of interest *has been earned* by the capital so long as it was invested in this form. The re-investment is a new operation dealing with the future, and does not affect the past. The few writers who asume that the whole theory of amortization depends upon the creation of a sinking-fund to be utilized at maturity but not before, and who have made present values depend on an arbitrary rate of 4 per cent in the accumulation of this sinking-fund, hold opinions contrary to those of the most eminent actuarial writers.

It might as well be claimed that a serial issue of 5 per cent bonds at par, payable \$1,000 each year, did not pay 5 per cent because you could not re-invest each \$1,000 so as to pay 5 per cent up to the last maturity. A bond at a premium is practically a serial bond, the successiv repayments not being uniform like this \$1,000 series, and the last being much larger than any of the preceding ones.

BOND REDEMPTION AND SINKING FUNDS

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Sinking funds in private finance are payments made by a corporation to the trustee of its bonds, to be devoted to the retirement of the bonds either at maturity, serially, or in instalments, usually annual. In kind, the sinking funds present an almost infinite variety. In effect, they are uniform. They tend to reduce the outstanding liabilities against the property of the corporation, and hence to enhance the value of the equity represented by the stock of that corporation.

In the case of public finance, government bonds, state bonds and municipals, the principle of the sinking fund is slightly different. The government and the municipality are not usually in business. They have no revenues except taxes, in one form or another. If it be accepted as an axiom that the public debt must be kept down to a fair parity with the property owned or governed by the public, then sinking funds become an expedient that comes close to being a necessity. For the correct principle of public taxation is that the people who enjoy, and benefit from, the public debt should be the people to pay it off. For instance, the people of New Rochelle, N. Y., decide to build new fire stations. Bonds are issued for those stations. The bonds have thirty years to run. It would not be right to allow the people of 1937 to meet the whole burden of paying off this debt, which will represent at that time not the new, efficient, and necessary plant of to-day, but a plant thirty years old, and probably obsolete. If such a bond be allowed to run to maturity without some sinking fund provision the people of 1937 will probably be obliged to finance not merely the maturing bonds but an additional amount sufficient to rebuild the plant from top to bottom. It is by such short-sighted methods that governments, and more especially local municipal governments, run into disastrous debt.

It is well to take up the question of corporation sinking funds somewhat *in extenso* before turning to the consideration of state

sinking funds in detail. In general, the writer does not believe that sinking funds for corporation bonds are good finance. The following objections may be noted:

1. *A certain sum to be used each year from current revenues to purchase the bonds of a certain issue at 110 and interest, or other such price. Illustration, the Nebraska Extension 4's, Chicago, Burlington and Quincy, 1927.*

A sinking fund of this sort establishes a fictitious price. In the case in point, it means that the revenues of the stockholders are diverted to the purchase of bonds at 110, which will, if allowed to run, be paid off at 100. Since the issue is a large one, the waste seems to aggregate nearly \$2,500,000. There seems no good reason for the sinking fund at all.

2. *A certain sum to be set aside to be used in the purchase of a certain bond at certain times at a fixed price, or in other securities if the bonds named cannot be secured at the price. Illustration, Burlington and Missouri River, in Nebraska Sinking Fund debenture 4's.*

Such a sinking fund is of little or no use to the holders of the bonds in a receivership, because, after all, their main reliance must be in the property pledged under the mortgage. Moreover, in nine cases out of ten the other securities purchased are the bonds of other issues of the same system, and therefore exposed to the same risks as the bonds retired. Suppose, for instance, that this issue was found at maturity balanced in the accounts of the company against a collection of other branch line bonds of the Burlington system. What funds would be used to pay the holders of these bonds? Clearly, unless the company happened to have a great amount of cash on hand, it would be necessary either to sell the divisional bonds in the treasury or else re-finance the maturing bonds in some other bonds or stock. It is rather difficult to find out what advantage has been gained through the sinking fund, so far as the payment of the debt is concerned.

3. *A certain sum to be set aside to retire or call a certain amount of the bonds each year, say at par. Illustration, Republican Valley Railroad 6's.*

Few investors desire to purchase a bond that may be forcibly taken away from them at any time by lot. In particular, they do not want to buy such a bond at any price above the figure at which

it may be called. Of course, shrewd dealers figure the chances on such redemption, and often establish a price above the call price, but the average investor does not care for that kind of chances in his use of money. In some European countries municipal bonds are created with such an element of chance in the drawing for redemption that they come very close to the lottery ticket in their nature. If a man happen to get an early redemption, his profits may be over 20 per cent in the year. That is not a correct principle to introduce into the bond market.

4. *A certain sum to be set aside to purchase the bonds at a certain price, or to be used at the discretion of the trustees if the bonds cannot be obtained at that price. Illustration, Lincoln and Northwestern Railroad 7's.*

This provision speaks for itself. The fact that it is found mostly in very small mortgages on big systems reveals the doubt that naturally hovers around it. Suppose that it were applied to a mortgage for \$100,000,000, with an annual sinking fund of \$2,000,000. It would then provide the trustee, in years when the bonds were too high, with a comfortable little fund with which he could do pretty much as he liked, within reason. Certainly, the principle of such a provision is susceptible of no defense.

In general, there can be little defense of the sinking fund as a financial expedient in railroad or corporation finance. It is difficult to see by what right the stockholders of the Chicago, Burlington and Quincy are asked to give up each year over \$700,000 of their revenue to form a fund for the protection of the bondholders. If it were a fact that the property upon which the bonds are liens was wasting through decay, or deteriorating through use, then there would be some reason in it; but since the mortgage in most cases provides that no such waste or decay may take place, and since the stockholders yearly contribute in maintenance charges more than enough to keep the property in the condition called for under the mortgage, it seems transparent that the sinking fund charge is a burden quite unnecessary, and perhaps even unjust.

Of course, it may be argued that the stockholders get the ultimate benefit of the retirement of the bonds. When a student of finance undertakes to analyze the value of the stock of the Chicago, Burlington and Quincy he always reckons the sinking funds as belonging to the stockholders. But the average stockholder would

much prefer to have his profits in money. In the case in point, the old stockholders of the Burlington, whose sacrifices built up the sinking funds so largely, sold out of their stock in the years that followed the great decline of the early days of the last decade, and the profit of the self-sacrifice made by those stockholders has gone to Mr. J. J. Hill and his friends, or to the Great Northern and the Northern Pacific it may be. In a general way, it is not usually a good thing for the stockholder to be quixotic, or to build with an eye single to the interests of to-morrow, for the history of our great corporations has shown indubitably that where one sows, often in tears, another reaps in joy.

The principle of the sinking fund in operation in the bonds of a corporation of this nature is hardly defensible, yet many have defended it. In this past year, so able a financial writer as Mr. Edgar Van Deusen, former instructor in finance at Tuck School, Dartmouth College, writing in the "Bankers' Magazine," stated his thesis in the following words:

"It is a significant fact that all the strong companies of the Northwest have developed in connection with their sinking fund policy, until to-day they occupy an almost impregnable position. The sinking fund, besides constituting a safety fund for those particular bondholders, furnishes a proper outlet for the uncommonly large earnings of strong corporations. It may be claimed that exceptional earnings should be paid to shareholders rather than held as a trust fund for the benefit of a certain class of creditors. But where this latter course is followed, and the indebtedness proportionately reduced until the property is so far free from encumbrance, the sinking fund payments *ultimately* accrue to the benefit of the stockholder through the resultant increase in the absolute value of the property, while in the meantime of protection to the bondholder. Furthermore, unusually high dividends are never paid regularly to stockholders, but the surplus remains as an unappropriated fund which may be easily 'juggled' by an unscrupulous management for their own advantage and the company's possible detriment, when it has no predetermined use as a sinking fund. Such a provision, accordingly, seems desirable to both bond and stockholder, even in the case of strong corporations."

Since this view is widely held, and has many strong advocates, it is as well to take it up in some detail. Let us look,

for instance, at the "strong companies of the Northwest," above referred to. Did the profits through sinking funds "ultimately accrue" to the stockholders who provided them? The Union Pacific, the Oregon Short Line, the Oregon Railroad and Navigation Company and the Northern Pacific passed through reorganizations of various sorts, and it is difficult to see how the original self-sacrifice of the old Northern Pacific Railway stockholders has been repaid in profits. Without going into detail with regard to the various changes that have come to the roads above mentioned, it may be stated that they are evidently not meant in Mr. Van Deusen's statement.

He refers, then, to the Burlington, the Northwestern and the Great Northern. The last named has about \$12,000,000 in its sinking funds, in the old bonds of the St. P., M. & M. R. R. The writer has never heard it advanced as a great reason for the value of the stock of the Great Northern Railway that this sinking fund existed, and he cannot believe that it is more than an infinitesimal factor in the value of that stock. The case of the Burlington is touched upon in previous paragraphs. The Chicago and Northwestern is a better client for the advocate of the sinking fund, but even here it would be difficult to prove that more than a very small percentage of the stockholders who built up the sinking funds to over \$10,000,000 in 1901 reaped much advantage from the prices that have ruled in this stock this past year or two; for the road was nearly captured by the Moore Brothers and their associates in 1902, and the ownership shifted radically.

As to the "juggling" with the surplus, such an episode is surely rare. The great magnates seldom confine their "juggling" to the small amounts that accrue to the income surplus from year to year. The "juggling" of the Rock Island, the Cincinnati, Hamilton and Dayton, the Pere Marquette, the Chicago and Alton, the Union Pacific, was not done through an income account. It was done through capital account in almost every instance. Men have at times "rifled the sinking funds," plundered the capital account, split the stocks, robbed the improvement accounts and done various other high-handed acts of financial piracy for personal gains on a large scale, but I cannot recall a case from my own experience where any great financial wrong was worked upon the stockholders through the appropriation of the income surplus. Petty wrongs

are easy to remember, but "juggling" on a large scale has always been done through other agencies.

Turning from the strong companies, it is time to make inquiry as to the effect of a sinking fund on the weak companies. The history of finance tells the story clearly enough. In cases where it has become necessary to save the corporation, the sinking funds are passed without much hesitation. It will be found that it is difficult, in many cases impossible, to enforce the payment of the sinking fund as strictly as one may enforce the payment of interest or principal. As a matter of sober fact, the trustee of the mortgage is generally found to be pretty complacent, and he will not go into court to throw the road into the hands of a receiver to collect the sinking fund. If he should do so, and there should be a sudden collapse in the prices of the bonds, the bondholders would be the first to execrate him. A sinking fund is not supposed to break a company. A weak corporation, striving to build up its property, can gain no benefit through being obliged to take in some of its older and better established bonds each year. If the money used for such a purpose is appropriated directly for improvements and additions, the benefit is far more direct and the company gains far more strength than it could gain through the sinking fund.

That this is recognized may be happily illustrated from the record of the Rock Island Company. When the Chicago, Rock Island and Pacific Railway Company bought the Choctaw, Oklahoma and Gulf it issued for that stock its collateral trust bonds, payable in series up to 1918. No provision was made at the time for paying the annual instalments, amounting to about \$1,475,000, except from the earnings of the Chicago, Rock Island and Pacific. It was soon seen, however, that the payment out of income was a burden, and surely an unjust one, for why should the stockholders sacrifice a large part of their surplus to buy stocks for the capital account? Therefore, when the refunding mortgage was made, in 1904, provision was made under it for the payment of these serial instalments. To-day the Rock Island appropriates its income surplus directly for the purchase of equipment and for improvements. Who will say that the change is not to the benefit both of the property and its stockholders?

It is as well, having gone thus far in the discussion, to define this criticism of the sinking fund principle, lest it be thought that

the criticism applies with equal force to *all* corporation sinking funds. The conclusion to which the study of the question points may be stated as follows:

That sinking funds are not advisable, but rather are unjust, when applied to bonds that are issued to purchase or create permanent additions to the capital account, or properties that will permanently establish new earning capacity for the property of the corporation.

It is on this word "permanent" that the whole discussion hinges. When bonds are issued to purchase some property that will waste with time or will entirely disappear in a few years, taking its earning capacity with it, the sinking fund is not only advisable, but it is necessary, if the corporation will avoid the evil of stock and bond watering. If a company issues \$4,000,000 of bonds to purchase a coal mine containing 2,000,000 tons of coal, and takes all the coal out within five years, the bonds remain as a permanent charge against the earnings of the corporation, and future stockholders are assessed to pay interest on capital from which they derive not one dollar of benefit. In every such case there should be a sinking fund.

A good sinking fund of this sort, established on a sensible and sane, but rather peculiar, principle, is the fund of the Reading Company and Philadelphia and Reading Coal and Iron joint general gold 4's, of 1997. The sinking fund provision is as follows:

"That the Reading Company shall not, in any year, pay a dividend on either class of stock until it shall have paid to the trustee five cents per ton of anthracite coal mined in the preceding year from the Coal and Iron Company's lands to an amount not exceeding the amount of dividends in such preceding year. This sum is applied to the purchase of these bonds, at not exceeding par. If bonds are not obtainable at that price, the fund is to be invested in such securities as are legal for New York savings banks."

For the sake of clearness, the provision is here taken from Moody's Manual for 1907, rather than from the mortgage.

Similar funds will be found in operation in nearly all conservative coal mining companies, though the provisions as to call price, investments, etc., will vary in each case. The principle, of course, is that the bonds shall be retired contemporaneously with the exhaustion of the coal. Similar arrangements are usually

made in the bonding of a lumber tract, a land company, or any body of property purchased to be resold. The Canadian Pacific has recently retired the last of its land grant bonds against balances unpaid by the purchasers. In such mortgages, where agricultural land underlies the mortgage, a sinking fund is usually based upon a percentage of the aggregate amount received in any one year for lands sold; but this, of course, is arbitrary, and varies greatly. It will be found that the railroads of the United States generally observe as axiomatic that such wasting properties as land, timber and coal demand a sinking fund on the bonds. In respect to coal, the same principle is generally observed throughout the long list of small independent companies.

Unfortunately the industrial companies are not, as a rule, so soundly financed in this respect as are the railroads. The United States Steel Corporation and many others of the big companies have established sinking funds with their bonds on wasting properties, but only a small percentage of the little, scattered companies have been so conservative. Frequent cases could be cited where a lumber development company, a paper company, a land company, or a mining company has depleted its fixed assets year by year, paid dividends to its stockholders, then finally left the bondholders to foreclose on stripped timber lands or empty holes in the ground. It is too ordinary a story to need elaboration.

From this fact arises the rule, so strongly enforced in conservative banking circles, that all industrial bonds must be carefully scrutinized before purchased. It is not advisable to make any permanent investment in industrial bonds secured on wasting properties unless the sinking funds are liberal. In a very general way the nature of the sinking funds for various industrial corporations may be itemized:

Coal Company.—A royalty of two cents to ten cents per ton mined, per annum, to be invested in the bonds at a fixed price. Drawing by lot is advisable.

Land Company.—Fixed sum per acre or lot sold, the aggregate amount being sufficient to retire the whole issue contemporaneously with the sale of the last acre or lot.

Manufacturing Company.—An annual "renewal fund," quite apart from the "improvement fund," sufficient to replace the plant when it is worn out. The period varies. If the machinery will

last ten years, on an average, the fund should be ten per cent of the cost, or of the bonds issued for plant. A manufacturing plant without this sinking fund against its bonds, or stocks, or floating liabilities is practically certain to over-capitalize sooner or later.

Lumber or Paper Company.—A charge of so much per thousand feet on lumber cut, or so much a cord on pulpwood cut, sufficient to retire the bonds at exhaustion of the property. This fund should be compulsory, and clearly stated as such in the mortgage, with proper penalties attached.

Steamship Company.—Annual "depreciation fund" sufficient to replace the tonnage in the fleet when worn out.

This is, of course, intended to be merely an illustration of the principle upon which the sinking funds should be established. It is not at all intended to be exhaustive. It is not too much to say that every manufacturing company that issues bonds against its buildings, its plants, its supplies of raw material, must have sinking funds. If it does not, its business will have to carry an ever-increasing burden of capital. Suppose a sugar company has outstanding \$50,000 of five per cent bonds against its plant, maturing in thirty years. The entire plant will be worn out in fifteen years, let us say. New buildings must be erected and new machinery put in. How is it going to be done? If there has been no sinking fund, that issue of \$50,000 must stand as a first lien against the renewed plant. Presumably it will take at least as much again to renew. The debt against the plant at the maturity of the first mortgage will be \$100,000. If there have been no sinking funds at all, the plant will be again worn out, and the assets of the bonds maturing will be practically nil.

Turning again to the railroad field, attention to-day centers upon the question of paying for the millions of dollars' worth of new engines and cars that are constantly made necessary by the increasing flood of traffic. Here is a field in which the sinking fund principle is generally insisted on by the best and most conservative critics. In general, the critics take the ground that all equipment added to the rolls of an established railroad system should be paid for out of current earnings within the lifetime of the equipment. In cases where the accumulated earnings are not sufficient to pay for the required engines and cars in a lump sum, the sale of serial equipment bonds or notes—usually called equipment trusts—is ap-

proved. The most extreme of the critics would not allow the permanent bonding of any new equipment except what is included in the original cost of the completed property.

As railroad editor of the *Wall Street Journal*, the writer, on a previous occasion, took this attitude in criticising the new refunding mortgages of the Chicago, Rock Island and Pacific and the Colorado and Southern, when they were created. It seemed right to deplore the tendency of the financiers at the present time to place practically all their new equipment under permanent mortgages. That this tendency exists is well known. Yet reflection and study of the equipment situation throughout the country have tended to at least soften, if not to change, the opinion expressed at that time.

Applying the general principle that all permanent additions to the plant should be financed under permanent mortgages and all temporary additions by bonds or notes under sinking funds, the division of the equipment charges of the road may be made with justice. Renewals of the original equipment covered by the construction mortgages, or of any equipment bought subsequently under bond issues and pledged with the trustee of those mortgages, or even not pledged, should come out of the current revenues. This is usually accomplished by means of a "replacement fund," not peremptory but optional with the directors. The fund is built up in good years, and carried as a liability in the balance sheet.

The object of such a fund should be not to increase the earning capacity of the property so much as to maintain it. At all times during the life of a railroad the earning capacity represented by the equipment put on the road at building and subsequently added through permanent financing should be kept intact without recourse to the capital account in any way. It should not, theoretically, be increased out of current revenues. Of course there comes in the history of most railroads a long period during which the plant is allowed to run down. The property, and more especially the equipment, is scientifically skinned by the management for personal profit, to pay dividends or to "make a showing." The waste through such process should be made good out of earnings, without recourse to capital account. Such a process has been in action on the Southern Pacific, the Santa Fé, the Union Pacific and many other railroads throughout the past few years.

When, however, it is necessary to add new equipment, increas-

ing the number of locomotives, the number of cars, or the capacity of either the motive power or the rolling stock, it is right to call upon the capital account to make the additions. For instance, the Union Pacific in 1906 added seventy-four locomotives. One was charged to replacement and seventy-three to "free assets," *i. e.*, to capital. That seems just. The point of the distinction is that the addition of new equipment, increasing the earning power of the property as a whole, simply increases the value of the road as a whole, and creates new property which must be maintained and renewed out of earnings, but should not be created in that way.

In the case of the St. Louis and San Francisco Railroad, for instance, we have a property that was built through a territory and to reach traffic that did not demand a heavily-equipped railroad plant at the outset. Let us suppose that the new lines of this company through Texas and the territories, were built at the outset for \$15,000 per mile and equipped for an additional \$6,000 per mile, and that securities to the aggregate market value of \$21,000 per mile were issued against this line. Not even the most radical exponent of the sinking fund idea would claim that it is incumbent upon the management to make provision for a sinking fund against these securities. The fact that the equipment put on the line will all be worn out in twenty years has no weight. The point seems to be that the earning capacity which is created by the use of this equipment is a permanent earning capacity and may properly be made subject to long term bonds and take its place under the item "property and franchises" in the balance sheet of the company.

The equipment thus created should always be maintained and renewed at the expense of the stockholders. In other words, at the end of twenty years there should be, on this line, in working order, equipment worth this \$6,000 per mile, which has not been created by an additional call on the capital account. If, however, it has been necessary in the meantime, to add very largely to the capacity of the equipment on the line, such addition may very properly be charged to capital account and financed under a permanent mortgage without a sinking fund.

This distinction will draw the line pretty clearly between the two kinds of additions to property which should be financed under sinking fund and permanent securities respectively. The first class,

which are really replacements or renewals and which merely perpetuate the value created in the first place by the construction financing or by permanent financing subsequent to the construction, are very properly carried out under serial or sinking fund bonds or notes. These securities, known as equipment bonds, equipment notes, or car trusts, may be found in great abundance in the list of latter-day financing. The student may consult the records of the Missouri Pacific, the Norfolk and Western, or the Central of New Jersey for examples of equipment serial bonds. The St. Louis and San Francisco will afford plentiful examples of the equipment notes. The Pennsylvania issues car trusts in abundance. Here and there one may find equipment replacement financed under regular sinking fund bonds, as in the case of the Buffalo, Rochester and Pittsburgh 4½'s of 1922. Convention and practice have established a rule that sinking fund or serial issues of this nature are a lien on the entire amount of the equipment purchased until the last of the securities are retired.

Turning from the field of private finance to the question of sinking funds on government and municipal debts, the variety becomes almost infinite. It is recognized as a rule that the debts of states or municipalities, based as they are upon assessments and the taxes levied on the basis of such assessment, should be amortized through sinking funds. The usual method of establishing such a fund for the issues of municipalities is to provide in the resolution creating the debt for the payment out of taxes of a certain amount year by year to be invested in the bonds either by purchase or by drawing. The bonds so called are generally kept alive in the sinking fund, and the interest is added to the fund for redemption of the bonds. There are, however, hundreds of variations of this method.

To cover the variations and the phenomena of such sinking funds in detail would be an endless and a thankless task. A general outline of the subject may be gathered from an analysis of the methods used by the states for the making of their sinking funds, and the uses to which such funds are put. The aggregate of such funds in the states is put, in the latest government returns, at \$35,281,201, divided as follows:

North Atlantic	\$25,884,288
South Atlantic	6,461,653
North Central	1,274,890
South Central	390,128
Western	1,270,242
 Total	 \$35,281,201

Of this the State of Massachusetts holds \$18,304,730, or over fifty per cent. Of the other states, Maine, New Hampshire, Vermont and Connecticut of the first division; the District of Columbia, West Virginia, North Carolina and Georgia, of the second division; Illinois, Wisconsin, Iowa, Nebraska and Kansas, of the third division, and Wyoming, Utah, Washington and Oregon, of the fifth division, have no accumulated sinking funds; while in the fourth division but two states, Kentucky and Arkansas, have such funds.

The following distinctive funds may be cited:

Arkansas.—Since 1899, an annual tax of one mill on the dollar has been levied against taxable property to provide a "general sinking fund" out of which all obligations are to be met.

California.—The San Francisco depot fund consists of monthly payments of \$4,631 made by the harbor commissioners out of collections, to be used to pay interest on the harbor improvement loan and to retire it at maturity. This fund is invested in United States bonds—a very wasteful investment.

Colorado.—The capitol, casual deficiency, Cripple Creek insurrection and Leadville riot bonds are to be retired by a sinking fund based on taxes to be levied some years after the date of the bonds, sufficient to create an annual fund amounting to twenty per cent of the issues.

District of Columbia.—It is noted above that there are no sinking funds on hand. By an act of 1878, the commissioners were abolished, and the Treasurer of the United States took command. He has construed the law to mean that he can buy with the funds any of the bonds of the District and cancel them. Therefore the fund disappears as it is created.

Florida.—Sinking funds were made for the 1871 and 1873 bonds, based on annual taxes for interest and one per cent of the principal of the 1871 bonds and an annual tax of one mill on the dollar for the 1873 issue. In 1901 the bonds of 1871 in the fund

were canceled and the cash in the fund transferred to the general revenue of the state.

Georgia.—The constitution of Georgia requires the assembly to raise \$100,000 per annum for sinking funds, but it does not appear that the constitution has been respected to any great extent.

Kentucky.—The sinking fund in Kentucky is derived from a tax of five cents per \$100 of taxable property and the income from some stock investments. In this state, as in some others, the "general fund" appears to be able to make an occasional overdraft on the sinking funds.

Massachusetts.—Sinking funds in this state are very numerous. In general, they start with the deposit of the premium over par received for the state bonds when sold. In the case of bonds issued to aid railroads, the fund is usually based on an annual payment to the state by the railroad. In 1867, a state issue to assist the Boston, Hartford and Erie Road was provided for by a charge of \$50,000 per annum against the road, supplemented by an additional charge of \$20,000 against a new bond issue in 1869. By 1890 this fund had grown so big that it was sufficient to retire the bonds at maturity. It was, therefore, diverted to help meet other sinking funds. The state has reserved to itself the right to change its sinking fund provisions from time to time. The principal funds of the state are as follows: The bounty loan sinking fund, coast defense sinking fund, Boston, Hartford and Erie sinking fund, Troy and Greenfield sinking fund, closed and the specified bonds paid; prison and hospital loan sinking fund, statehood loans sinking fund, Fitchburg Railroad securities sinking fund, Medfield Insane Asylum sinking fund, state highway loan sinking fund, abolition of grade crossings loan sinking fund, harbor improvement loan sinking fund, and Massachusetts war loan sinking fund, alive and in operation at the date of the government report.

Minnesota.—The sinking funds of Minnesota are of two classes, the first being raised by taxation and the second from proceeds of the public lands set aside by the legislature to meet the old debt of the state.

Montana.—There are six sinking funds in Montana, all derived from the proceeds of land grants made to the state by Congress.

New Jersey.—The small state debt of New Jersey is amply provided for, the sinking funds being greater than the entire debt

in every year since 1897. A unique provision in this state is that the treasury may be called upon to make up a deficiency in the sinking fund, the same to be paid back as the funds come in.

New York.—All the bonds issued by New York State between 1890 and 1902 were serial bonds, and therefore needed no sinking funds, except the canal bonds. The sinking funds therefore consist of a part of the canal fund of the state.

Ohio.—The constitution requires an annual sinking fund of \$100,000, to be gathered from the sale of lands, public works, or stocks owned by the state, from the income earned by the profit-producing public works and the stocks owned, and from a tax to be levied to make up any deficiency left by the above sources of revenue.

North Carolina.—This state has two classes of sinking funds, the "ordinary" and the "cumulative phosphate" sinking funds. The income of the latter is derived from royalties on phosphates, amounting to \$37,500 per annum. Both funds are now invested in the bonds of the state, without cancelation. A third fund, for insurance, is not included in the regular government report of the sinking fund, but is treated separately.

Virginia.—The sinking fund provision in Virginia is very elaborate. The fund is based largely upon the stocks and bonds of railroad and canal companies held by the state, both the income and the principal of such investments being included. The fund is based on the securities owned prior to 1875, but the law of 1894 supplemented this fund by the addition of all revenues received by the state from its interest in the work of internal improvement.

It will be noted that there is no great uniformity in the maintenance and operation of these state funds. Nor does the amount of the funds at a certain date have much meaning, because such amount is made up only from the cash or bonds or stocks held alive in the fund. In cases where the sinking funds are immediately invested and the bonds canceled, the amortization of the debt goes on, but the government report does not show it. This process is followed to some extent in nearly every state, and many of the states that are reported by the government to be without sinking funds are steadily reducing their debts by cancelation.

In the whole field of study covered, however imperfectly, in this review, there is one particular feature that should be recom-

mended to the attention of the private investor. It will be found in the laws of Massachusetts with respect to the sinking funds. That state provides that when its bonds are sold *at a premium* the full amount of the premium goes into the sinking funds. That law is a recognition of a principle that too few private investors understand. The principle, which is the chief application of the sinking fund principle to the investments of the private individual, may be stated briefly:

Bonds bought at a premium for investment are wasting investments, and unless the buyer establishes a sinking fund against the premium paid they are necessarily losing investments if held to maturity.

Let us take as an example a 6 per cent bond for \$10,000 bought in May, 1907, for \$12,000, and due May 1, 1927. If the whole annual income of \$600 is considered income, and spent, the investor will find when the bond is paid off that he has spent as current revenue \$2,000 of his principal. Of course, every man who knows anything about investments knows this fact, but, unfortunately, far too many investors seem to forget it.

Following this example, let us determine how much should be set aside out of each semi-annual interest payment as a sinking fund to equalize the waste in the value of the bond. The following is a partial table, to cover investments at 4 per cent, 5 per cent and 6 per cent, for periods from 10 years to 25 years. It is based upon the idea of withdrawing a certain fixed part of the revenue each half year and depositing it in a savings bank or trust company to receive interest at the rate stated, compounded every six months, through the period stated. For convenience, the table shows the amount to be deposited to absorb a loss of \$1,000 during the period named:

Years.	Four per cent.	Five per cent.	Six per cent.
Ten	\$40.35	\$38.19	\$36.13
Eleven	35.91	33.80	31.79
Twelve	32.23	30.16	28.20
Thirteen	29.12	27.09	25.18
Fourteen	26.46	24.48	22.62
Fifteen	24.17	22.22	20.41
Sixteen	22.17	20.26	18.49
Seventeen	20.41	18.54	16.82
Eighteen	18.86	17.03	15.34
	(228)		

Years.	Four per cent.	Five per cent.	Six per cent.
Nineteen	17.47	15.68	14.03
Twenty	16.23	14.47	12.88
Twenty-one	15.12	13.39	11.84
Twenty-two	14.11	12.42	10.90
Twenty-three	13.19	11.54	10.06
Twenty-four	12.36	10.74	9.30
Twenty-five	11.50	10.00	8.61

In the example cited above, the investor should put into his sinking fund \$32.46 each half year if he can get only 4 per cent, \$28.94 if he can get 5 per cent, or \$25.76 if he can get 6 per cent. At the end of the twenty-year period he will find the loss of \$2,000 on his principal exactly balanced by his bank account. Any trust company or banking house can supply the tables needed by the investor to enable him to calculate for himself the sinking funds he should have established against his investments at a premium.

VALUE OF A BOND DEPARTMENT TO A BANK OR TRUST COMPANY

BY GEORGE B. CALDWELL,
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It is within the past five years that the attention of the public has been directed to the action taken by some of our largest national banks and many of our trust companies in opening bond departments. There is little doubt but that this movement has met with popular approval by both the public and the managers of the banks that have entered this new field of banking. Prior to 1900, the handling of bonds was confined almost entirely to private banks. The progress in banking which has brought about the trust company, with its various departments, has led to the establishment of the bond department as an important part of a modern trust company.

The many millions of dollars' worth of bonds that have been put upon the market during the last few years could not have been handled had the work been undertaken by the private banks alone. The funds at their command were inadequate to carry on a business of such great magnitude, and this made it inevitable that the private banker must have the assistance of the larger banks. The banks found that the bond business was a special line of banking, differing very materially from that of discounting commercial paper, or loaning money on real estate, and that in order to aid the bond houses successfully, as well as to further the best interests of their clients, a special department in the hands of experienced men was essential. Experience has proven that this was at least a safe, profitable and dignified course for the banks to pursue. In this way the private banks have been greatly benefited. They have found a man in the bond department of their bank who could comprehend their needs and aid them in their undertakings. This I should say was the original reason that led many of the larger banks to form and maintain bond departments.

The bond department of a bank, besides being an aid to the various bond houses, has also found a large field of operation and

responsibility in the investment of a considerable portion of the bank's own funds. There are few national banks, and a less number of trust companies, that do not invest in bonds. The percentage of increase in the assets of banking institutions of all kinds in bonds since 1900 is over 300 per cent. To have these investments carefully scrutinized by those familiar with the issuing of bonds is in itself of great value to the larger banks and trust companies which carry an investment of from \$1,000,000 to \$50,000,000 in bonds.

In addition it may be said that the growth of the bond business, aided by the larger banks in the country, has opened another avenue of profit, viz., that of supplying the investment demand. Among the customers of every bank are some persons with funds to invest who desire an income larger than can be secured from the rate of interest paid on savings deposits. Such customers will seek their banker for advice and ask him to recommend investments for them. The banker, desiring to be helpful to his customers, feels the additional responsibility to be somewhat greater than he is always qualified and willing to undertake, but by the aid of his organization, one branch of which is a well-organized bond department, he has a place to which all such inquiries can be referred, and through which such investments can readily be made.

Another feature of banking which has no doubt been aided to a considerable extent through the agency of the bond department is that of passing upon collateral offered the bank from time to time for loans. All banks loan the larger percentage of their money on collateral, and heretofore the banks have had only a limited knowledge of the character of this collateral, gained largely from stock exchange and curb market quotations. Beyond the investigations made by the banks themselves through their various credit departments, they are frequently aided in their judgment of both stocks and bonds by the statistics and ready information to be found in the bond department. The bond department also creates a great deal of new business for the trust department of a trust company, and frequently arranges many new loans which the banking department can take to advantage.

The bond department of a modern bank to be efficient and of value must not only be equipped with a manager, but must have on its staff competent men as appraisers, auditors and attorneys to pass judgment upon properties and to act as employees in the buying

end of the business. Such a department must also have a sales manager and various salesmen to look after the advertising and selling and to place before the public the various bonds they desire to offer for sale. Through the agency of the buying department, all banks come into possession of detailed knowledge at the hands of their official staff, charged only with the responsibility of protecting the bank's funds. In the selling end of a bond department, the bank comes into contact with the investing public, which is not alone confined to the customers of the bank, or trust company, but to those of other banks and trust companies and other bond houses. This aids the bank in securing knowledge of the general market conditions that should be of benefit to any banking institution in making new friends and obtaining valuable information bearing upon the future welfare of the bank.

In general, it may be said that as the investment field broadens the work of the bond department will naturally grow and become of still greater importance. It will educate and turn out a large number of capable and careful men to become the future traders in securities. It is certainly wise that these men should be educated under the influence of banks where the standards of moral responsibility, as well as of financial credit and strength are high. In their education in this department, they are continually impressed with this standard. As they grow up it becomes a part of them, and in after years it will become an element of security to the investing public. Banking houses operating bond departments do not and cannot afford to offer the public at any time securities which do not possess both "security" and "income." Public insight into financial institutions and into public loans of all kinds is keen, and has been trained to discern any technicality or slight irregularity. For any banking institution to recommend any investment that will not bear the closest examination would be very detrimental to its business. The zealous maintenance of this principle will both broaden the market for bonds and bring to banks and trust companies a large and profitable business yet in its infancy.

TABLES OF BOND VALUES—THEORY AND USE

By MONTGOMERY ROLLINS,
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This article assumes that the material presented is to be referred to by the average practical dealer or investor in bonds, who seeks results for easy use and application. There are more exhaustive treatments of the subject¹ which may better serve the purpose of those engaged in the valuation of an estate, or in other instances where great care should be exercised in order that all parties may be treated equitably.

It is strange how frequently one who has, during his entire business career, been familiar with the handling of investment securities, or, in fact, been in almost daily contact with such matters, fails to comprehend the principles upon which bond values tables are computed. The writer has been time and again surprised to find that men who should understand such matters suppose that it is a mere calculation by simple arithmetic, and that not to obtain the results given in the ordinary tables of bond values by their method astonishes them. Such people have begun on the supposition, to illustrate, that they could take a bond bearing 6 per cent interest, maturing in ten years, costing 110, and divide the premium—10 per cent—by the length of time which the bond has to run—in the case cited, ten years—and, obtaining 1 as the result, deduct it from 6 per cent, the rate which the bond bears, and assume, therefore, that the net return upon that particular investment is 5 per cent, the 10 per cent premium being charged off at the rate of 1 per cent yearly.

The failure in this reasoning arises from their not understanding the fundamental principles upon which such tables are based, which presuppose that the holder of a bond will, at the maturity of each one of the coupons, reinvest a sufficient portion of the money received, and keep it so invested until the maturity of the bond, so that the face value of the bond, added to the accumulation of reinvested interest, will, at its maturity, be exactly equivalent to the original cost of the same.

¹See Chapter VIII of "The Accountancy of Investment," by Charles E. Sprague.

We have now arrived at the parting of the ways in this computation. There are two classes of accountants, or what you may choose to call them, whose ideas at this point sharply diverge. The first proceeds on the principle that the portion of the coupon money set aside shall be compounded at the same rate as the net return upon the investment. To illustrate: If it is a twenty-year 5 per cent bond, and selling at such a price as to yield 6 per cent, it is assumed that the money set aside shall be compounded at 6 per cent, regardless of the rates of interest which will probably prevail at such investing periods. To show further the absurdity of this, imagine the owner of several different lots of bonds, one lot having been purchased at a price to yield him 6 per cent per annum, another at 5 per cent, and another at 4 per cent. The class which we are now discussing assumes that a portion of these interest payments, even though they may all fall due at the same dates, shall be reinvested at compound interest at 6 per cent, 5 per cent, and 4 per cent respectively. It is unreasonable to believe that these three separate rates of interest will be ruling, at the same time for a similar grade of securities, or that there is any likelihood that the investor will guide himself, in the reinvestment of this interest, by taking into consideration the net return which he is enjoying upon the bonds in question.

The other school, which is undoubtedly the correct one, proceeds upon the plan of the reinvestment at some fixed definite per cent, say $3\frac{1}{2}$ per cent or 4 per cent, without any regard to the net return which the original purchase price of the investment warrants. It does not take a very deep knowledge of finance to see that it is fairer to predict the future investment rates of money at some average rate, such as just mentioned, than at such widely divergent rates as by the other plan.

In the case of bonds selling at par both schools would be right as to their results, because there are no premiums or discounts to be provided for. Also, in the case of a bond computed by the first method, selling at a net return which is the arbitrary rate assumed as the reinvestment rate of the second method, then, likewise, will the two schools agree, but in all other instances they disagree. An idea of the amount of this disagreement may be shown by referring to the table accompanying this article, by which it will be seen that a 6 per cent bond having twenty years to run,

selling to net 5 per cent, is 112.55, and, in this case, 5 per cent is the compounding rate. By the use of a table of bond values based on a 4 per cent compounding rate, 112.03 is the result—a difference of nearly one-half of 1 per cent. Yet, custom has decreed, and undoubtedly always will, that the tables based upon the principles of the first school, including those of the author of this article, which he conceives to be inaccurate, are likely always to prevail in use, and that the tables of the second school will never reach any wide circulation. It would be relatively as great an undertaking in financial matters to change from the incorrect to the correct school, as it would be to introduce the metric system into this country, or to change the present standard gauge of railways.

In the circulars of banking houses offering investment securities, the financial columns of newspapers, and the "shop" talk of the investment dealer, will be encountered, with great frequency, such expressions as: "net return upon the investment," or, to be more specific, "a bond pays the investor 4½ per cent," "yields 4½ per cent," "is on a 4½ per cent basis," or whatever the rate may be. In any event, the intent is to convey the information as to what rate of interest the purchaser of a certain security at a given price may expect upon his money. By this is meant the proportionate rate which the income upon any investment bears to the total cost of that investment—"accrued interest" excepted—taking into consideration the time which it may be outstanding before being paid off.

Stocks, as a rule, are irredeemable, and consequently are figured as perpetual. Most bonds and other investments of a redeemable nature—having some fixed determinable time to run—are not so figured. A simple illustration of an irredeemable stock would be that of one selling at \$200 per share, upon which dividends are being paid at the rate of 8 per cent yearly. In this case, the ratio of dividend, namely, 8 per cent, to the total cost, \$200, would be 4, or 4 per cent, which is the investment yield. If the price of the stock were but \$100 per share, and the dividend rate 4 per cent per annum, the yield would still be 4 per cent.

We now come to a security having some determinable date of maturity, and the problem likewise becomes more complicated. Special tables, commonly known as bond values tables, are used to ascertain the net returns from investments of this class. The books

comprising these tables are so arranged as to cover different periods for which redeemable securities are likely, in the experience of bankers, to be outstanding; and, therefore, cover half yearly periods from six months to, say, fifty years, and then at greater intervals to one hundred years, it being supposed that most securities of this class will mature in, perhaps, twenty-five or thirty years and the vast majority inside of fifty years.

To simplify this article, page 45, which covers the twenty-year period, is reproduced from one of the ordinary books in use.

Henceforth, we shall speak of all redeemable securities as bonds. Let us now take an example of a bond having twenty years to run, bearing 5 per cent interest; at what price must it be sold to pay the investor 4 per cent? The twenty-year page above covers the period in question. The column headed 5 per cent must be taken and followed down until opposite 4 per cent in the extreme left-hand column. A result of 113.68 will be found, which is the rate of purchase of a bond to yield 4 per cent upon the investment; that is to say, \$1,136.80, plus the interest which may have accrued since the last maturing coupon. This 4 per cent net return means 4 per cent per annum for each of the twenty years, and is reckoned upon the entire sum invested "accrued interest" excepted—or in this case, \$1,136.80.

The time upon which to compute the net return, or the price of the bond, is the time from the date of computation to the maturity of the issue, not from the date of the issue, as some inexperienced persons have occasionally supposed, unless, of course, the date of issue and the date of computation should coincide.

This seems a pertinent place to consider at some length the matter of "accrued interest" referred to above. Strange as it may seem, there are many investors who fail to comprehend a subject, which, to most, is so simple. It is customary to make nearly all bonds with interest payable twice yearly. Let us take a \$1,000 bond bearing 5 per cent interest. Upon this there will be found two coupons of \$25 each, and, we will say, for the sake of simplicity, that these coupons fall due, one in January and the other in July of each year. On the first day of September, a purchase is made of a twenty-year bond at 113.68 and accrued interest. The purchaser will pay \$1,136.80, which is the principal and premium, but in addition thereto, he will pay the interest upon \$1,000, the face

20 YEARS

Interest Payable Semi-Annually.

PER CENT PER AN.	3%	3½%	4%	4½%	5%	6%	7%
2.90	101.51	109.06	116.60	124.15	131.70	146.80	161.89
3.	100.00	107.48	114.96	122.44	129.92	144.87	159.83
3.10	98.52	105.93	113.34	120.75	128.16	142.98	157.81
3½	98.15	105.55	112.91	120.33	127.73	142.52	157.31
3.20	97.06	104.41	111.75	119.09	126.44	141.13	155.82
3½	96.34	103.66	110.97	118.28	125.59	140.21	154.83
3.30	95.63	102.91	110.19	117.47	124.75	139.30	153.86
3.35	94.93	102.17	109.42	116.66	123.91	138.40	152.89
3½	94.58	101.81	109.04	116.27	123.49	137.95	152.41
3.40	94.23	101.44	108.66	115.87	123.08	137.51	151.93
3.45	93.54	100.73	107.90	115.08	122.26	136.62	150.98
3½	92.85	100.00	107.15	114.30	121.45	135.74	150.04
3.55	92.17	99.29	106.41	113.52	120.64	134.87	149.11
3.60	91.50	98.58	105.67	112.75	119.84	134.01	148.18
3½	91.16	98.23	105.30	112.37	119.44	133.58	147.72
3.65	90.83	97.88	104.94	111.99	119.04	133.15	147.26
3.70	90.17	97.19	104.21	111.24	118.26	132.30	146.35
3½	89.51	96.50	103.50	110.49	117.48	131.46	145.44
3.80	88.86	95.82	102.78	109.74	116.70	130.63	144.55
3½	87.90	94.81	101.73	108.64	115.56	129.39	143.22
3.90	87.58	94.48	101.38	108.28	115.18	128.98	142.78
4.	86.32	93.16	100.00	106.84	113.68	127.36	141.03
4.10	85.09	91.86	98.64	105.42	112.20	125.76	139.32
4½	84.78	91.54	98.31	105.07	111.84	125.37	138.90
4.20	83.87	90.59	97.31	104.03	110.75	124.19	137.63
4½	83.27	89.96	96.65	103.35	110.04	123.42	136.80
4.30	82.68	89.34	96.00	102.66	109.33	122.65	135.98
4½	81.80	88.42	95.04	101.65	108.27	121.51	134.75
4.40	81.51	88.11	94.72	101.32	107.93	121.14	134.35
4½	80.35	86.90	93.45	100.00	106.55	119.65	132.74
4.60	79.22	85.72	92.21	98.70	105.19	118.18	131.16
4½	78.94	85.42	91.90	98.38	104.86	117.82	130.77
4.70	78.11	84.55	90.99	97.43	103.86	116.74	129.61
4½	77.57	83.98	90.39	96.80	103.20	116.02	128.84
4.80	77.02	83.40	89.79	96.17	102.55	115.32	128.08
4½	76.22	82.56	88.90	95.24	101.59	114.27	126.95
4.90	75.95	82.28	88.61	94.94	101.27	113.92	126.58
5.	74.90	81.17	87.45	93.72	100.00	112.55	125.10
5.10	73.86	80.09	86.31	92.53	98.76	111.20	123.65
5½	73.61	79.82	86.03	92.24	98.45	110.87	123.29
5.20	72.85	79.02	85.19	91.36	97.53	109.87	122.22
5½	72.34	78.49	84.64	90.78	96.93	109.23	121.51
5.30	71.85	77.97	84.09	90.21	96.33	108.57	120.81
5½	71.11	77.19	83.27	89.36	95.44	107.60	119.77
5.40	70.87	76.94	83.01	89.07	95.14	107.28	119.43
5½	69.90	75.92	81.94	87.96	93.98	106.02	118.06
5½	68.72	74.68	80.64	86.59	92.55	104.47	116.38
5½	67.57	73.46	79.36	85.26	91.15	102.95	114.74
5½	66.43	72.27	78.11	83.95	89.78	101.46	113.13
6.	65.33	71.11	76.89	82.66	88.44	100.00	111.56
6½	64.25	69.97	75.69	81.41	87.13	98.57	110.01
6½	63.19	68.85	74.51	80.18	85.84	97.17	108.60
6½	62.15	67.76	73.36	78.97	84.58	95.79	107.01
6½	61.14	66.03	72.24	77.79	83.34	94.45	105.55
6½	60.14	65.64	71.14	76.64	82.13	93.13	104.18
6½	59.17	64.62	70.06	75.50	80.95	91.83	102.73
6½	58.22	63.61	69.00	74.39	79.78	90.57	101.35
7	57.29	62.63	67.97	73.31	78.04	89.33	100.00

value of the bond, from July first, when the last coupon was detached, until September first, two months. The bond bearing 5 per cent, this interest will be computed at that rate, and the investor will pay, in addition to the \$1,136.80, \$8.33, which is the interest on \$1,000 for two months at 5 per cent. An investor may fail to comprehend that this \$8.33 is not thrown away. As a matter of fact, it is returned to him when the next coupon is paid, which will be, following this illustration, January first. The investor will have held the bond four months, at the end of which time he will receive not only 5 per cent per annum for the time he will have held it, but, likewise, the \$8.33 which he paid to the holder from whom he made the purchase. He will be out, however, interest on the \$8.33 for the four months.² Here is where bonds and stocks sell differently, although there are exceptions to this rule. When a stock is sold, a sufficient price is added to the quotation so that it offsets the amount of interest—dividend—which has accrued since the last payment. A stock selling ordinarily at \$100 a share and paying dividends at the rate of 4 per cent per annum, 2 per cent, say, each January and July, would, everything else being equal, be quoted at 101 half way between the two dividend periods, as the 1 per cent premium would fairly represent the dividend accumulation for three months at the rate of 4 per cent per annum.

On the New York Stock Exchange bonds are sold in this same way, and quotations include the interest accrued. Upon the Boston Stock Exchange they are—income or defaulted bonds excepted—sold plus the accrued interest, and the difference is here accounted for in the quotations upon the two different markets of the same security. The ordinary bankers selling bonds not listed upon the New York Stock Exchange, customarily sell the same “with accrued interest.”

The foregoing explains such common expressions as “103 and accrued interest,” “109 and accrued interest,” or “109 and interest.”

²The loss of interest upon the interest brings up the point that ordinary investment transactions always ignore this loss. Unless a bond by chance happens to be purchased upon a coupon date there must be some accrued interest paid, and absolute accuracy in figuring would demand the taking of this into consideration and would change slightly the net yield if it were figured into the actual purchase price, even though it were returned to the purchaser at the next coupon period. This would complicate matters so much, however, that it is seldom taken into consideration, as the amount, which is always against the purchaser and in favor of the seller, is slight.

An expression something like this is often encountered: "Yielding 4 per cent for the first ten years and 5 per cent for all time thereafter which the bond may run." By this it is understood that the issuer of the bond has the right to redeem it any time after ten years, but shall not be obliged so to do until some later date, as, in this case, twenty years. These bonds are known by such titles as "10-20 year bonds" or "10-20's," by which it is understood that they are absolutely due and payable in twenty years, but optional on the part of the issuer to redeem any time—generally upon a coupon date—between ten and twenty years. In a case of this kind, the seller must not assume that the bond will run longer than ten years. The greater the length of time which any form of an indebtedness, selling at a premium and having a fixed rate of interest, may be outstanding, the greater the percentage in interest return to the holder, prices always being equal. Therefore, in selling a 10-20 year bond at a premium, the net return should be computed on the basis of its being outstanding the minimum possible number of years—in this case ten—but should it run twelve years, for instance, before being paid off, the purchaser would benefit by the two additional years. That is, if the net return were computed, as it should be, on the ten-year basis, for any additional time which the bond might run, the investor would obtain a yield of the full rate of interest borne by the bond.

Should a bond be selling at a discount, the shorter the length of time which it runs the greater the interest return, prices being equal; the contrary to a bond selling at a premium. In computing the interest return or yield, the following rule must be observed, if the issue is "optional," so called, as in the case just cited:

Rule for Computing Net Yield of Optional Bonds

When bonds are selling at a premium, the interest return must be computed upon the shortest possible time which the security may be outstanding; when selling at a discount, the greatest length of time which it may be outstanding must be used as the basis.

In buying an issue of bonds known as "serials," that is to say, with a certain portion of the issue maturing periodically, many dealers in investment securities, who should know better, make the mistake of averaging the life of the issue, and then, by the use of a

table of bond values, basing their computation upon this average maturity; whereas, a separate price should be computed for each maturity, and then the average price taken—supposing, of course, that it is the intention to make one price for the entire lot, covering the different maturities. If bonds are bought by the first method and retailed by maturities, either a loss will result, or a less profit than expected.

The fallacy of averaging the maturity, and upon the period of time resulting computing the net return, arises from the fundamental principles set forth elsewhere in this article, that the net return upon a bond is based upon reinvesting at compound interest a certain portion of the coupons as they severally become due. Consequently, each maturity of a serial issue must be computed upon its own time, in order that this principle of compounding the interest may have true application.

An investor should guard against deceiving himself as to the income upon a redeemable bond, for which he has paid some price other than par. Let us illustrate by taking a bond having twenty years to run, bearing 5 per cent interest, and for which payment has been made at the rate of 113.68; that is, \$1,136.80 and accrued interest; the net return by the ordinary bond values tables being 4 per cent. That is to say, the investor is supposed to receive 4 per cent per annum upon the purchase price of \$1,136.80. In actual practice, as the coupons fall due, the investor receives \$25.00 each six months, or \$50.00 per annum. When the bond matures, he will receive, in addition to the last interest payment, only the principal sum of \$1,000. There is, therefore, \$136.80 premium paid that must be accounted for in some manner. A sinking fund, so called, may be set aside each half year out of the interest as received to provide for this premium. The investor is entitled to reckon his income at 4 per cent per annum on \$1,136.80, the total purchase price, which would be \$45.47, or, for each six months' period, one-half that sum; namely, \$22.74. Deducting this from the semi-annual coupon leaves \$2.26, which sum, if invested each six months at 4 per cent, will, at the maturity of the bond, added to the principal sum, equal \$1,136.80, the original purchase price.

This is all based on the supposition that the \$2.26 above mentioned will be invested promptly when received twice yearly at the rate of 4 per cent per annum; in other words, that it will be

compounded at 4 per cent per annum. It may be that this is an unfair rate, that a lower rate, $3\frac{1}{2}$ per cent, or the prevailing savings bank rate, would be a better one to choose. If such were the case, a proportionately larger sum would have to be set aside each six months to create a sufficient sinking fund.

So far, we have had but one period, *i. e.*, twenty years, together with a fixed net return and price. The amount of the sinking fund must necessarily vary with the change of any one of the three factors: time, net return, or price. We will change but one of these, the time. Take nineteen years as the life of the bond when purchased. The tables show the price of a 5 per cent, nineteen-year bond to net 4 per cent to be 113.22, or \$1,132.20 for a \$1,000 bond. Proceeding again, as above, we find 4 per cent on this sum to be, for a half year, \$22.64, or \$2.36 less than \$25.00, the amount of the six months' coupon. Here, then, is \$2.36 for a nineteen-year bond, as against \$2.26 for a twenty-year bond—prices and net return being equal—as the sinking fund.

The question naturally arises as to the way to treat similarly a bond bought at a discount. Let us again illustrate: A 5 per cent bond having twenty years to run, if purchased at the rate of 88.44, or \$884.40 and accrued interest, will net the investor 6 per cent; that is, 6 per cent on the \$884.40 invested. As the coupons fall due, he obtains, the same as in the above case, \$25.00 each six months, or \$50.00 per annum. When the bond matures he will receive, in addition to the interest, the full principal sum of the bond, \$1,000, for which he has paid but \$884.40. There is, therefore, a difference here of \$115.60, by which amount the purchaser will be apparently enriched at the maturity of his bond. If, however, he wishes to avail himself of the full 6 per cent net return, which is he entitled to receive, he must anticipate this difference of \$115.60, which may be done in this manner: He is entitled to reckon his income at 6 per cent on the \$884.40, the original purchase price, which, for each six months, would call for \$26.53. The coupon which he detaches from his bond provides for but \$25.00 of this. There is, consequently, the sum of \$1.53, which he should receive, from some source, to make his full 6 per cent interest. He may anticipate the \$115.60, above referred to, by taking from some other fund this \$1.53 each six months. This represents the amount which, if invested at 6 per cent, the same net return as provided for in the

investment, will, at the maturity of the bond, added to the \$884.40, just equal \$1,000. It will be noticed, however, that in this instance, it is supposed that the \$1.53 will be compounded at 6 per cent, and here again the fallacy of the customary method of compounding the reinvestment portion is emphasized, for it is not likely, nor supposable, that these sums can be compounded at 6 per cent. But, in this case, as the bond is bought at a discount, the investor will not be likely to deceive himself; for accepting an arbitrary compounding rate of 6 per cent is necessarily taking a less amount (in this case \$1.53) than he would if it were compounded at a lower rate. To prove this, let us suppose that 4 per cent is taken as this rate. The investor might then allow himself \$1.88 each six months to add to his \$25.00, to provide himself with a 6 per cent net rate.

To explain one more point in this connection, and following the illustration above where \$1.53 is taken each six months, and which must be taken from some other fund, is there not a loss of interest each time upon that amount until the maturity of the bond? Or, in other words, what provides for the interest on these sums? That comes back at the maturity of the bond, for it will be noticed that if \$1.53 be multiplied by 40, the number of coupons, the sum equals \$61.20. But \$115.60 will be received at the end of twenty years, and the difference between these last two sums is \$54.40. That is to say, \$54.40 represents the compound interest on the \$1.53 periodically taken and expended as income.

The above argument is based upon the supposition that a bond will be held until maturity, or that, in case it should be disposed of earlier, the price realized shall be such as to give a yield equivalent to that at the time of purchase. In other words, if a bond having twenty years to run, bearing 5 per cent interest, is bought at 113.68, *i. e.*, a 4 per cent basis, and is, at the end of five years, sold, it is supposed that the price shall be computed on a basis of the fifteen years which the bond still has to run, which, to give a 4 per cent basis, would be 111.20. Instead, however, the holder of such a security may sell it at a higher price than the equivalent basis. What, then, shall be done with this surplus or profit? This question has been considered many times by the courts, which have decided that this excess premium belongs to the principal and should not be considered as income. This is from the standpoint of trustees. The ordinary investor, however, may treat it as he likes, except that

in order to ascertain whether or not he has made a profit, he must find the price for the equivalent basis, and compare it with the price received.

Loring's "A Trustee's Handbook" deprecates the practice of buying bonds at a discount to offset those purchased at a premium, and his reasoning is that the difference in price is not simply a question of interest, but more often one of security.

Bond values tables cannot cover all rates of interest and all maturities. Neither can they give every conceivable net yield. To have in one volume sufficient matter to cover all the possible results, which investors or bankers may desire to obtain in the course of their investing or business careers, would require a volume beside which the family Bible of old would pale into insignificance. The most likely called for and commonly desired results only can be given in a volume of moderate dimensions. Likewise, financial conditions change. At times, rates of interest between $3\frac{1}{4}$ and $3\frac{3}{4}$ per cent are the prevailing levels of high-grade securities. It was not many years since, that few bond dealers would have had the temerity to predict a long-continued interval during which high-grade securities could be purchased to net the investor in the neighborhood of 5 per cent. Yet such is the condition of affairs at the time of writing this article. This is stated to illustrate the difficulties with which the authors of tables of bond values have to contend, in order to meet the popular demand. Tables issued a few years ago during the prevailing low rates of money are of little value to-day, when the rates have so largely increased.

The fact, however, that a book of bond values does not give every result sought for need not deter the user thereof from making some attempt to secure the result desired by a simple use of mathematics. We will confine ourselves to the twenty-year page already referred to as an illustration.

Suppose it were desired to know the price at which a $5\frac{1}{2}$ per cent bond should be sold to net the investor 4 per cent. In the 6 per cent column, opposite 4 per cent, will be found 127.36. In the 5 per cent column, directly to the left, 113.68. Add these two results together and divide by 2, and you have the result for a $5\frac{1}{2}$ per cent bond.

The highest rate bond which the sample page covers is 7 per cent. Prices to cover an 8 per cent bond may be found by obtaining

the difference between those of a 7 per cent and 6 per cent rate and adding the result to the former. Example:

Price of a 20-year 7 per cent bond to net $5\frac{1}{2}$ per cent . . .	\$118.06
Price of a 20-year 6 per cent bond to net $5\frac{1}{2}$ per cent . . .	106.02
Subtract	<hr/>
Add price of 7 per cent bond	\$12.04
	<hr/>
Price of 20-year 8 per cent bond to net $5\frac{1}{2}$ per cent . . .	\$130.10

By an understanding of all this, it will be clear that the results for a bond bearing any rate of interest may be quickly computed.

Again, suppose it is a 5 per cent bond having twenty years to run and that it is desired to find the price at which it will net the holder 4.05 per cent. The nearest results in the table here given to this are 4 per cent and 4.10 per cent net returns. Find the column headed 5 per cent; obtain the results for 4 per cent and 4.10 per cent; add them together, and divide by 2, and the result, near enough for all practical purposes, will be obtained. There will, however, be a very slight inaccuracy. If a result for 4.03 per cent were desired, it would be necessary to find the prices opposite 4 per cent and 4.10 per cent; subtract the lesser from the greater, divide by 10, which is the difference between 4 per cent and 4.10 per cent in the left-hand column, and then you obtain what the ratio of change is in price for each one-hundredth of one per cent increase in the net return. Multiply your result, to follow this example, by 3, and deduct it from 113.68, the price to net 4 per cent, and you obtain the price of a 5 per cent bond to net the investor 4.03 per cent per annum. This, again, is a rough mathematical calculation and not absolutely accurate, but a little understanding of such matters will enable one to form approximate and useful conclusions.

It is sometimes desired to ascertain what a bond will yield at a given price when sold "flat." By this expression it is understood that the purchaser pays no accrued interest. A twenty-year bond, bearing 5 per cent interest, with coupons maturing semi-annually, February and August, is offered for sale, April 1st, at 115 "flat." What does it pay? We must first find out how much interest

has actually accrued upon the bond. In this case, it is two months. This, then, must be brought into dollars and cents. Two months' interest at 5 per cent on \$1,000 (360 days to the year) is \$8.33. The price of the bond is 115: that is, \$1,150 for a \$1,000 bond. Deducting the \$8.33 just mentioned, you have as a result \$1,141.67, which brings the bond down to 114.167, or, rounding out the second place to the right of the decimal, 114.17. To put it in another form, 114.17 and accrued interest is equivalent to 115 "flat." By referring to the table under the column headed, 5 per cent, we find that 114.17 lies between 115.18, which is a 3.90 per cent basis, and 113.68, which is a 4 per cent basis. We deduct the lesser of these two figures from the greater and obtain 1.50, which represents the ratio of increase for each variation of ten one-hundredths of one per cent in the net return. That is, a 3.90 per cent basis is to a 4 per cent basis as 115.18 is to 113.68. Divide 1.50 by .10, the difference between 3.90 per cent and 4 per cent, and you get what the ratio of decrease in price is for one one-hundredth of one per cent, which would be 15. Now we deduct 114.17, which is the price given, from 115.18, the nearest higher price in the tables, and obtain as a result 1.01. Divide this by 15, the ratio of change in price for each increase of one one-hundredth of one per cent in the net return, and we get .067; by which we understand that 114.27, the price given, is less than 115.18, the next higher price in the tables, as .067 is the increase in net return over 3.90 per cent. Add, therefore, these two together, 3.90 and .067 and we obtain 3.967, which equals the approximate net yield, according to this example, of a bond selling at 115 "flat," which is the equivalent of 114.17 and "accrued interest."

To sum up:

Price of bond—"flat"	\$115.
Deduct 2 months' interest .....	.833
<hr/>	
Price of bond—"with interest".....	\$114.167 or \$114.17
Price of bond to yield 3.90 per cent.....	115.18
Price of bond to yield 4 per cent.....	113.68
<hr/>	
Difference in price to equal .10 difference in yield	\$1.50
1/100 per cent difference in yield, therefore, equals	15
	(245)

Price of bond to yield 3.90 per cent equals....	\$115.18
Deduct price of bond in example	114.17

Difference	\$1.01
Divide by 15, the difference in price equivalent to difference in yield for each $\frac{1}{100}$ per cent and get .....	.067
Add to	3.90

3.96 +, the result desired.

Be it understood, however, that this result is not absolutely accurate. There will be a variation of one or more one-hundredths, but it is a rough-and-ready way to obtain a very close approximation to what a bond will pay under conditions that are given. By the above method, it will be understood how to obtain the net return at a given price, when the price varies from what is actually given in the tables used.

It is seldom that a security is purchased upon a coupon date, and when such is not the case, tables which cover only half yearly periods are only approximate and must be adjusted to the actual time which the bond runs before maturity. For example, take a bond with 19 years $8\frac{1}{2}$ months to maturity bearing 5 per cent interest, to net 4 per cent. The twenty-year table gives 113.68, the $19\frac{1}{2}$ year table, 113.45. Subtract and get .23 which equals the difference in price between $19\frac{1}{2}$ and 20 years for a 5 per cent bond netting 4 per cent. Nineteen years $8\frac{1}{2}$ months lies between these two periods, and is $2\frac{1}{2}$ months longer than $19\frac{1}{2}$ years. There being twelve half months in a half year, divide .23, found above, by 12 and get .01916. As $2\frac{1}{2}$ months are 5 half months, multiply .01916 by 5 and get .0958, which is added to the price of the $19\frac{1}{2}$ year bond.

Thus 113.45 and .0958 give 113.5458, or, rounding out, 113.55, which is close enough for practical purposes.

We have been so far discussing bond values tables based upon redeemable securities with interest payable semi-annually. There are many issues of bonds in existence bearing annual interest, far more than the average bond dealer or investor realizes. There are, likewise, many other issues, such as our government securities, which have interest payable quarterly. It is not fair, therefore,

to use a table of bond values based on semi-annual interest payments to compute the net return upon issues of bonds with interest payable in annual or quarterly instalments. The semi-annual bond values tables, as already explained, are based upon the theory that a portion of the coupon money, as received, will be reinvested twice a year, and the interest compounded. In a bond with the interest payable but once a year, this money can only be reinvested and compounded once a year. Likewise, in a quarterly table, it will be four times a year. To show the difference, let us take (again see the table) a 4 per cent bond having twenty years to run. At 114.96 it pays 3 per cent as a semi-annual bond. As a bond with interest payable annually the price would be 114.88, and as a bond bearing quarterly interest payments, the price would be 115.00. There are to be had, therefore, separate sets of tables to meet these requirements.

ESSENTIAL RECITALS IN THE VARIOUS KINDS OF BONDS

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A bond ordinarily is simply a promise to pay money at a given time, bearing a rate of interest, the interest usually being payable at stipulated intervals—annually or semi-annually. Such a bond is sometimes defined as

An instrument in writing, under seal, whereby one binds himself to pay a certain sum of money to another on a day named.

Bonds are issued by governments, states, counties, municipalities, school districts and other public bodies. They are frequently classified as government and state bonds, municipal bonds and corporate bonds. Municipal bonds are subdivided into city, village and hamlet bonds. There are also county bonds and school bonds; railway, street railway, gas, electric light, water, telephone, telegraph and industrial bonds, which last term includes, generally, bonds issued by private corporations engaged in some specific line of industrial development. Railroad bonds have, for many years, stood almost in a separate class.

Income bonds are bonds, frequently, whose interest, and sometimes whose principal, are made payable from the income of the party giving the bond. Government bonds, state bonds and municipal bonds are seldom secured by mortgage on property, but depend for payment upon the faith and credit of the government, state, municipal, or other public corporation, and upon taxes or revenues collected for their payment. Railroad bonds and bonds of industrial and private corporations are almost invariably secured by mortgage or pledge of property, real or personal, or both, and are commonly known as mortgage bonds, or collateral trust bonds.

The essential recitals to be made in a bond depend largely upon the statutes and laws governing the issue. It is necessary to have a knowledge of the statutes under which the bond is sought

to be issued, in order to be sure of all the recitals which should enter into any particular issue of bonds. It is quite a common practice to select some bond form which has been evolved by long continued experience and adopt and copy such a bond. Such practice is much better than to approach the subject in a haphazard manner, but no bond form should be adopted without careful investigation of the authority by which it is issued and the conclusion arrived at that the bond complies in all respects with the authority granted. These observations apply to what may be called the unusual recitals in bond forms. Some of these recitals are not essential, but at times the recitals, if they are to become part of the contract between the obligor of the bond and the one who buys it, are very essential, and it becomes very necessary to have the exact terms clearly expressed.

A bond written in any unusual phraseology is liable to attract attention and raise questions that might hinder the negotiation and sale of a bond that would not attract attention if written in the ordinary terms.

A bond secured by mortgage, whether real estate, chattel or collateral trust, should usually, in addition to containing the obligation to pay, advise the bondholder, either directly or by reference to the mortgage, of his rights and of the terms and conditions upon which the bond is issued and secured.

Ordinarily, a proper form of mortgage bond will set forth:

- (a) *An acknowledgment of the indebtedness for value received.*
- (b) *A covenant to pay the principal at a certain place and time, in lawful money, or gold coin of a fixed standard of weight and fineness, with interest at an agreed rate, payable at a specified place, and at specified times, usually semi-annually, and ordinarily represented by coupons attached to the bonds.*

For many years it has been the custom in this country to require bonds to be paid in gold coin of the present standard of weight and fineness. Since the rapid advance of prices in the last few years and the great increase in the amount of gold which is being mined annually, some long-time obligations, running from fifty to one hundred years, are giving the obligee a right to demand payment either in gold coin or in lawful money, at his option.

- (c) *A description of the issue of which the bond is one, showing usually the amount of the issue, and, oftentimes, the purposes.*
- (d) *A statement showing that the bond is secured by a mortgage or trust deed, as the case may be; the place where the instrument is recorded or filed, and a reference to the instrument for a description of the property mortgaged or pledged; the extent and character of the security, and the terms and conditions upon which the bonds are issued.*

Usually the bond is specifically made subject to the terms and conditions of the mortgage, so that, should there be any conflict between the terms of the bond and mortgage, or instrument securing the bond, the terms of the mortgage will govern.

- (e) *A recital briefly advising the bondholder of his rights on default of payment of interest or otherwise.*
- (f) *A provision that the bond shall not be valid until authenticated by a certificate endorsed thereon and executed by the trustee.*

This certificate to be executed by the trustee needs careful attention. It should not be a certificate purporting to be anything more than an identification of the bond as one of the bonds of that particular issue. The trustee should never represent that the bond is secured by a mortgage or other instrument executed to the trustee, because the trustee is not expected to in any sense determine that the bond is secured, or to what extent it may be secured. All that is asked of the trustee is to identify properly the bond and guard against an over-issue.

In addition to the foregoing, there are various special provisions which frequently occur in bonds. For instance:

1. *A provision for registration.* This in order that the bond, which is usually payable to bearer, may be registered and held so that the owner would not be deprived of his property, should the bond be stolen or destroyed by fire. If a recital of this kind is to be put into a bond, ample provision should be made for converting the bond once registered to an unregistered bond, and to make several of these changes, especially if the bond is a long-time bond and liable to pass through several ownerships.

2. *A provision for redemption prior to maturity.* Such provisions are exceedingly common in railroad and corporation issues. Experience has taught those who are in the habit of drawing bonds of this character, that almost every kind of business is liable to develop far beyond the expectations of those interested at the time a bond is put out; and that, in order to finance an increasing business, whether it be a railroad or even an ordinary corporate enterprise, upon which larger demands are being made yearly for capital to be used in the business, additional stock must be sold or additional bonds issued. Sometimes resort must be had to the one method and sometimes to the other. When it is found better to issue new bonds, it is frequently of great advantage to be able to retire the underlying bonds, and it is very wise that the bond should contain a provision permitting such retirement. As a matter of experience, the bond should usually provide for its retirement only at some interest-maturing period. Such retirement is ordinarily accompanied by an obligation to pay a premium, though not always; whatever the contract is, it should be clearly expressed upon the face of the bond. There can be said to be no uniform custom as to the amount of the premium, as bonds are seen upon the market which provide for their redemption at all the way from par to 115 or 120 per cent of their face. The ordinary provisions, however, usually observed, make a redemption possible at from 102 or 103 to 110.

3. *For a sinking fund.* The sinking fund provision in a bond is sometimes a difficult one to deal with. The experience of the writer is that a sinking fund provision is frequently insisted upon, in close times, by a bond buyer, when it should not be submitted to by the person issuing the bond, and that the bond buyer would not insist upon it if he gave careful thought to its effect. This observation, of course, is true only with reference to certain kinds of bonds, such as bonds issued by street railway, electric light, water and gas companies, in rapidly growing municipalities where the service rendered is at the time of the issue of the bonds grossly inadequate to the demands of the municipality. In every such case, all income that can be earned above a fair dividend on the money invested can be put to better advantage, of both the bond-giver and the bondholder, in extensions and improvements of the plant than in providing a sinking fund. Any attempt to

compel the bond-giver to apply such earnings towards a sinking fund hampers and checks the growth of the plant and the proper development of the enterprise and is not so beneficial a security as such an amount would be, properly expended upon extensions and betterments to the existing plant. There is a character of bond, however, where the reverse is true and where a sinking fund is absolutely essential to protect the bond buyer. A familiar instance of this is a coal bond, or a bond upon a coal mine. Take, for instance, a bond issue of \$5,000,000 upon an estimated coal tonnage of 200,000,000 tons. It is essential that, as the coal is mined, some provision should be made for the payment of the bonds, which provision should be certain and definite. In the illustration used, a sinking fund of five cents per ton (which should be absolutely used for the retirement of the bonds, the interest to be paid besides) would retire the bonds or provide for their retirement at least as soon as one-half the coal is mined.

The illustration used is, perhaps, hardly a fair one, for it is frequently the case that bond issues are put on very much nearer to the value of the property. Other instances will readily suggest themselves. Vessel bonds, where the vessel is liable to decay and largely to depreciate, should have a sinking fund, and every bond, where the security is necessarily rapidly deteriorating. Such recitals should be specific and the trustee should rigidly enforce them. The trustee's attention is especially directed to see that strict observance is had of all sinking fund provisions. Instances are known where a trustee, by neglect, has permitted sinking fund provisions to be violated and the corpus of the property to be wasted before the maturity of the bond.

The main idea in the matter of sinking fund provisions, is that such provision should be intelligently written with reference to the particular issue of bonds, and that the bond buyer and bond seller should both have a thorough knowledge of the property.

4. *For the exemption of stockholders, directors and officers of the corporation from individual liability for the payment of principal and interest of bonds.*

Provisions like this arise mainly from two causes: First, in the original promotion of many enterprises property which is of an uncertain value is, under a contract, turned over to a corporation,

sometimes accompanied with a money payment and sometimes without; sometimes in an undeveloped condition and sometimes in a developed condition, for a given number of bonds and a given amount of stock, all of which are issued as fully paid, and then the bonds and stock are put upon the market by the party making the proposition. If the enterprise turns out successful no question arises, but if, as is not infrequent, the enterprise is a failure, and the property mortgaged will not sell for sufficient to pay the outstanding bonds, then the bondholder (who is frequently an innocent person) looks to see if he cannot hold the original promoters, the stockholders, directors and officers in some way, for any deficiency. To guard against being so held, recitals of the character suggested are frequently put in the bonds.

A second reason for such a recital arises from the double statutory liability provided for in some of the states. The constitution of some states provides that all stockholders shall be liable for an additional amount up to the amount of the holding of their stock to pay the indebtedness of the corporation. Most states have no such provision, but wherever such provisions do exist they make trouble and give rise to a considerable amount of litigation. Such litigation it is sought to escape by a contract provision in the bond or mortgage.

A recital of the character suggested should be full and distinct in the bond to be effective, and so written that the holder of the bond, by the mere fact of buying it, becomes a party to the contract expressed in the paragraph, and he agrees to release, to the extent provided, the officers, directors and stockholders from individual liability. As to the construction of such provisions and their validity, the courts have not all agreed. They are, however, generally enforced if specific. In order to be so enforced the courts have leaned to the holding that the provisions must be set out in sufficient detail to advise the bondholder in the bond of his exact rights and lack of rights in respect thereto. Some courts have held that it is not sufficient to have these provisions set out in the mortgage, with a scanty reference to the mortgage in the bond. Other courts have held that where the mortgage referred to the bond the mortgage could be held to govern. But, in fairness to the bondholder, such a recital should be so made as to be a part of the contract.

A great bulk of the issues of bonds issued throughout the country are lithographed or printed bonds, put out cheaply and without much care. In very many localities which do put out bonds continually the people are not familiar with the requirements for listing of bonds upon stock exchanges. Many issues are put out each year, with no thought of listing them upon the stock exchanges, when, years later, it is found that it would be very desirable if the bonds could be listed. It would be, indeed, very advisable if some means could be taken to acquaint the public more generally with the requirements of the various stock exchanges, and especially that all large issues of quasi-public and industrial corporations should be made to comply with the rules of the stock exchanges, so that bonds would be properly certified by an independent trustee and such form adopted as would bring bonds within the rules and regulations of stock exchanges and permit them to be listed.

Municipal bonds are very different in many respects from the bonds of the ordinary corporation. While it is true that all bonds are, to some extent, regulated by statutes, still much more attention has to be given to the issuing of a municipal bond than to many so-called "corporate bonds." Municipalities are not held to a strict accounting of debts and obligations incurred, unless the same are legally incurred, and it has too frequently happened that municipalities have sought (and in cases succeeded) to avoid their just obligations upon purely technical grounds. It is, therefore, most important that every safeguard possible be thrown around the issue of municipal bonds. It should be the object of every municipality, including of course hamlets, school districts, and everything of that character, to obtain the highest price possible for their bond issue as well as to give the bondholder the greatest security. There has grown up, therefore, a class of recitals which it is ordinarily expected to find in a municipal bond, by which the municipality guarantees that all its actions have been regular, and that everything necessary to be done has been done to make the bond a binding obligation upon the municipality; that the total indebtedness of the municipality, including the issue of which the bond is one, does not exceed the constitutional or statutory limits of indebtedness, and that the tax necessary to pay the same does not exceed any constitutional or statutory limitation thereof.

Many bonds are put out by various municipalities that are known as "improvement bonds," and the question is sometimes an interesting and close one as to whether such bonds are payable only out of assessments collected upon property benefited; or, in the event that such assessments turn out invalid, for any reason, or insufficient when they are collected, to pay the bonds, whether the bonds become general obligations of the municipality.

It is hardly possible to do more than to suggest these various questions, in the way of warning the bond buyer that it is necessary to have all matters of this character looked into before the municipal bond is purchased.

In the older states, by reason of very thorough examinations for the last few years, the municipalities, or many of them, are being educated to examine carefully the statutes before their bonds are issued, and to conform to the statutes and have their record in complete shape before their bonds are offered; but, frequently, municipalities seem almost to go wild in their desire to aid some railroad or similar industry that they think will help their particular locality and to issue aid bonds. Such bonds have brought a great deal of litigation, as the result is frequently the same as promoting any enterprise, the aid furnished does not bring the result anticipated, and technical advantage is sought to be taken of any mistake or omission in the issue.

Generally speaking, it may be said that the recitals in municipal bonds should also contain a reference to the laws under which the bonds are issued, the purpose of the issue and a reference to the proceedings authorizing the issue. Then the bond buyer should insist that the bond should contain a broad general recital to the effect that all acts, conditions and things necessary to be done precedent to the issue of the bonds, in order to make them legal, binding and valid obligations of the municipality, have been done in regular and due form, as required by law; and that the faith, credit and revenues and all the property of the municipality are pledged, either directly for the prompt payment of the principal and interest of the bonds at maturity, or in such a way as to obligate the municipality to see that the assessments or taxes are levied and collected to pay the bonds at maturity, and that the total indebtedness, including the issue of the bonds, does not exceed the constitutional or

statutory limit of indebtedness, and that the municipality has the right to collect the necessary tax or assessment to pay the bonds.

It must be borne in mind all the time, however, that there are some things that a municipality cannot contract to do, and that there are some things it may, by recital in bonds, estop itself from afterwards disputing. No municipal bond should be put out or purchased until some one shall have thoroughly examined into the situation and passed upon it. This obligation should be upon the municipality. It would, to quite an extent, raise the value of all government, state and municipal bonds if they could be issued in such a manner that there would be no disputing of the obligation when once put out. To have such credit as that is what every government and every state should desire for all of its municipalities.

THE ORGANIZATION AND MANAGEMENT OF A BOND HOUSE

BY WILLIAM FOLEY,

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Bond house is the name used to denote a partnership or corporation formed or organized to buy and sell evidences of municipal or corporation debt. All bond houses are also banking houses in that they advance money to municipalities and public corporations, and their business is distinguished chiefly from other banking in that they do not transact commercial business. In this country the name bond house, by custom, has come to apply to those houses which endeavor to sell bonds strictly on the investment value by advertisement, circular letters and personal solicitation, as distinguished from banking houses, which accept deposits and deal in other securities as well as bonds; and from brokerage houses, which deal in bonds but on a commission basis only.

The organization of a bond house comprises: First, a buying department; second, a selling department, and, third, a financial department. The duties of these departments may be analyzed under these various heads.

The Buying Department

The first duty of the buying department is to examine into the safety of such investments as may come into the market for sale. In the case of corporation bonds this will necessitate critical and careful examination of the assets, physical value, franchises and rights, past and present earning power and management of the corporation desiring to borrow. With the loans of municipalities, a close inquiry must be made of the valuation of the property, the extent of the existing debt, character of the officials and general reputation of the borrowing communities. Once the decision is made that the security offered is ample, and that the obligation will be secure beyond question, the matter of price requires consideration.

Since the limitations of the business the bond house can do are

dependent on its ability to sell, and to borrow pending sale, the matter of price becomes one for consultation with the other departments. The selling department can best judge of the ease with which the bonds may be sold, and the probable figure at which sales may be made; the financial department can best determine the desirability of the bonds as collateral.

If all of these questions are satisfactorily answered, it remains for the buying department to make the purchase at the best price possible, but not above such a price as will secure, in all probability, a fair profit. All purchases are made on the condition that the legality of the issue shall first be approved by the attorney for the bond house, and for this purpose certified copies of all papers precedent to the issue must be prepared. In many cases the bonds are issued under the direction and advice of the attorney for the purchasers.

When the bonds are prepared, it will then become the duty of the buying department to examine them for signature, certifications and seals, and to see that a proper delivery is made, which includes payment for the bonds to the proper party. The purchase now being made, the bonds are turned over to the financial department.

Recapitulating the duties of the buying department, they may be stated as follows:

First. To buy only such bonds as are safe.

Second. To see that the bonds have been issued legally.

Third. To buy as cheaply as possible.

All other duties of the buying department are tributary to these.

The work of the buying department as considered up to this time consists of the buying of new and original issues; but more often it is called upon to purchase blocks of bonds of old issues on which there is a known market. In order that the buying department may have the necessary information on file, it is the custom in all properly constituted bond houses to maintain a library of information, or, as it is more often called, a statistical file. This library of information will contain the well-known manuals of information in regard to railroads and corporations extending over a number of years, files of the current financial publications, the supplements of the *Financial Chronicle*, envelopes containing newspaper clippings concerning the various corporations, which files should also contain an account of any personal observations of the properties which it

may be possible to make. As to these last observations the bond house should encourage its employees to put into writing any personal observations they may make or any interesting gossip they may hear of the various corporations. No piece of information is of too little value to keep. The library of information will also contain the books, supplements and publications relative to municipalities, with complete records of past municipal sales and prices.

The circular offerings of other houses should also be kept carefully, and reference indices to the various offerings should be placed in the information file of each corporation or municipality. The objects of the library of information are apparent, briefly they may be stated to be:

First. To enable the buying department to judge quickly of the security offered.

Second. To offer a complete record of the prices at which the security has sold.

Third. To locate possible buyers or sellers of the bond in question.

It is an axiom of the bond business that a bond well bought is already sold.

The Selling Department

Since bonds are bought usually at wholesale and sold at retail, the selling department will use more employees than the buying department. The first duty of the buying department is to see that the funds of the bond house are safely invested; the first duty of the selling department is to develop its ability to sell, as on that ability the growth of the business depends.

The selling department should consist of a manager, office salesmen, and outside salesmen, with the necessary assistants. The manager should be a man who has not only a wide knowledge of securities in general, but who is full of market information, and who will know instinctively in what market a security will be well received. It will also be his duty to regulate the price at which the security should be offered, and direct the efforts of the salesmen. In large houses more than one manager may be needed, and such managers' duties may be divided either on the line of the classes of bonds, or as to the territory where sales are made. The manager must always be in close touch with his salesmen, and upon taking

up a new offering should talk over the issue exhaustively in order that the salesman may not only understand the desirability of the security, the reason why his house has bought it and why it recommends it; but also that he may become enthusiastic about it and go out on his business with the innate feeling that he can sell the security.

The office salesmen may be divided into two classes, the men who meet and talk with clients who come into the office, and the men who prepare circulars and letters. Salesmen of every class must be men of more than usual intelligence and must know bonds and the bond business; but it is especially important that the office salesmen should be men of pleasing personality, with quick memories of people and events. The men who prepare circulars and write letters are the men behind the guns. Letters must be direct, forceful and in good English. In bond literature unnecessary prolixity is a sin. As a rule, more bond buyers know a house through its circulars and letters than in any other way. Therefore on the intelligence, directness and business-like form of these communications, the opinion of many possible customers will be formed.

The outside salesmen are composed of city men and traveling men, and it is their duty to sell bonds by personal solicitation. Their work is more difficult and requires a degree of self-assurance and the ability quickly to interest a buyer in the matter in hand. But it is particularly necessary that these salesmen should be able to impress the men they visit with their knowledge of what they are offering. It is also particularly the province of the salesmen to gather new names of investors, and upon their doing so conscientiously depends largely the ability of the house to increase its number of customers.

Two information files, which are of the greatest value to the bond house and essential absolutely to its success, are kept in the selling department. The first, which is often the firm rock on which success is built, is the investors' list. This list will consist of the names of those who have bought from the house, and of those who are well known as buyers of bonds from other houses. A second list will be kept of possible buyers; this is, of course, a tentative list, and names will be occasionally moved to the regular list or dropped altogether. The investors' list is a source through which considerable loss may come to the house, and it is the aim of every

house to see that letters and circulars go to possible buyers only, and that useless names be discarded as rapidly as possible. The names for the investors' list are gathered through many sources, which in their relative importance are as follows: First. Through the exertions and observation of the salesmen who in their day's work meet many people. Second. Through the tax lists and records of the probate courts. Third. Through the replies to advertisements in the newspapers and financial publications. Fourth. Through the names furnished by clients. That such a list is of great value is illustrated by an instance recently published in the daily papers of a discharged employee of a bond house who took a copy of the investors' list. In this case the bond house was willing to pay twenty-five thousand dollars for its return, although the list taken was only a duplicate.

In the well-organized bond house the investors' list will be subdivided under the direction of the manager on the lines of probable sales. From his observations and experience, the manager comes to know the inclinations and preferences of the clients. Supposing, then, that the house has seen fit to purchase an issue of municipal bonds of a city in the middle west, it is the duty of the selling manager to see that an offering of those bonds is in the hands, at the earliest possible moment, of the men who are known to buy bonds of that class. In the same way he will so direct his salesmen that they will visit first those who will be most inclined to consider the security offered.

The second list of importance kept by the selling department is the bond sales list. This list is entered under two heads, and consists, first, of a list under the heading of the bond description and shows to what investors or other houses the various bonds have been sold. This list becomes valuable in that, at maturity, it will enable the selling department to locate the holders of the securities, and in all probability to replace the investment with other bonds, and also should there, before maturity, arise an occasion when there is a demand for that particular issue, it will enable the house to locate the bonds and make bids where there will be probable results.

The list is also cross-entered under the name of each investor. The object in doing this is to enable the house to keep posted on the securities owned by each client. With this knowledge on hand

the house is able to talk more intelligently with him, and to make exchanges which are of mutual benefit.

The Financial Department

Bond houses are provided generally with large amounts of capital, and, as a rule, are considerable borrowers of money in addition. It is the duty of the financial department to receive and pay for securities bought, to make deliveries of bonds sold, to arrange loans and to keep the general books of the business. The matters of receipts and deliveries are well regulated by custom and require no especial mention or description.

The item of loans is an important one, and one through which much money may be made or lost for the bond house. All loans are made on collateral, and the collateral offered by bond houses is the best obtainable, since it is good intrinsically, rapidly resalable and of known values. In the conduct of its business the bond house comes to know many banks and many wealthy individuals who have at certain periods of the year surplus funds. If the reputation of the house is good and the character of its securities high, these funds may often be borrowed at rates below the market for money. At all times, however, the loans of bond houses, when secured by reasonable collaterals, are looked upon with favor and command the best borrowing rate. The adjustment of loans as to time is a question of policy for the house, and the decision on these matters should come only after consideration and consultation. It is wise to keep a certain amount of loans on call, in order that the results of sales may immediately show in the interest-saved account.

If the bond house is of sufficient size and reputation, it will be advisable for it to maintain relations with one or more foreign banks, in order that loans may be made in the cheapest money market. Once the relationship is established, foreign banks will accept readily the time drafts of the bond houses; but they will demand the deposit of well-known and readily salable securities as collateral. The desirability of these connections has brought many bond houses into a regular foreign banking business, and inversely, a well-established foreign business has made a bond business adjunct desirable, so that we now see the foreign banking houses doing a large business in bonds. Some bond houses, when of sufficient reputation, borrow funds from their clients and others by soliciting deposits, on which

the best market rate is paid; but as this is properly a function of banking, the particular features of it will not be considered at this time.

Under the head of the financial department, it may be appropriate to call attention to the one particular in which the bond business differs from all others, except that of the dealer in commercial paper, *i. e.*, the cumulative nature of its stock on hand. In every other business where the functions of wholesaler and retailer appear, the item of interest on loans is a direct charge against selling profits, but bonds are themselves interest earners and the charge of interest becomes one of arbitrage only, depending on whether or not the bonds yield a greater interest return to the house than is paid on loans. In the average year, owing to the nature of its collateral, the bond house is able to borrow money at less than the average return of its investments, and the interest item is one of credit and a source of profit.

The keeping of the general books of the business is clerical in its nature, and requires no consideration in this paper. There are, however, many technical details, and the work should be in the hands of experienced and careful men.

The component parts of the organization of a bond house have now been considered. There are many details of the business of which no mention has been made. The transactions of syndicates and joint accounts, *et cetera*, have been omitted purposely, since their operation and management would require too much description. The effort has been made to show the skeleton structure about which the business has been built. In closing the paper, the writer wishes to say that, in his opinion, the bond house, *i. e.*, the strictly investment house, may expect to be successful if it has the following attributes, which are important in the order given:

- First. Absolute honesty.
- Second. Conservative and careful buying.
- Third. Energetic selling.
- Fourth. Well-developed system.
- Fifth. Conservative financial management.
- Sixth. Dignity.

BOND SALESMANSHIP

BY WILLIAM FOLEY,
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The successful salesman of bonds must be born with a good personality and a quick mind, but his real success depends more upon his desire to know and thoroughly understand the bonds he sells, and upon his realization of the responsibility and dignity attached to his profession.

To sell bonds successfully, the salesman must be ever studious. It is quite as important for him to keep thoroughly posted on every happening in the financial world and on every change or tendency to change in the leading money markets, as it is for the doctor to keep in touch with the developments of the medical world or the lawyer with the latest decisions affecting his practice. The word "profession" has therefore been used with intent. Bond selling is a profession in that it necessitates studious and careful preparation, and, at all times, constant reading and study.

The prime requisite for a successful bond salesman is that he should be a glutton for knowledge, knowledge of the world of business, of affairs, of public opinion and of general conditions. He must read the newspapers with avidity, particularly the columns devoted to the editorials, to financial matters, and to the railroads. He must supplement this by careful reading of the financial papers and magazines, and by such text books and articles as appear from time to time.

To sell successfully, the salesman must know not only the issue he is offering, but nearly everything else that may arise in reference to financial matters. The clients of the salesman belong to the class that has shown the ability to gather money, and they have given, naturally, considerable time and thought to the subject of its investment. The largest factor in the personal equation in bond selling is the necessity that the client should realize that the salesman knows his subject. No one, of choice, goes to a bad lawyer for advice, nor to a physician who is behind the times, nor will

clients buy bonds from a man who does not understand what he is selling.

The next important factor is the necessity for the realization of the responsibilities and dignity attached to the profession of bond selling, and of the duty to the client. The investing of money is a serious matter, and for the salesman who realizes it fully, there is a great field as a seller of bonds. Money in America accumulates very rapidly, the number of bond buyers increases each year, and the buyer of to-day will be in the market again next year and the year after. It therefore behooves the bond salesman to guard with sincerity the interest of the client, to the end that he may retain the business of his client, and establish for himself a reputation for honesty, conservatism and care. No immediate profit can make up for the loss of the client's business. The salesman who abuses the client's confidence to make sales above real values, or of indifferent securities, will gradually and surely disappear from the rolls, because he will soon have no clients. On the contrary the man who is faithful to his trust will add client by client, until the volume of his business becomes larger than ever hoped for.

For the same reason, it is necessary that the salesman should show fixity of purpose, and once he is satisfied that his house is safeguarding honestly and conscientiously his interests and the interests of his clients, he should remain with the firm until he can take his place as a partner.

The bond salesman who gains the trust of his clients, and builds up a business on the right lines, is creating a most valuable asset for himself, and one for which there is always a market value. Only a few days ago a salesman who has worked hard, has been conscientious at all times and has had success, said that it had been hard work, but the results were like a pension for life. Clients who come to have confidence in a salesman often rely entirely on his judgment. They not only rarely change to other salesmen, but recommend the salesman in the highest terms to their friends. A salesman who is losing his business must have some elemental weakness, and it is best for him and his house that his efforts should be turned early to other channels.

Some salesmen who are conscientious and have ability meet with only fair success. When this is so, it is probable that the sales-

man is not a good judge of people or is failing to place his offerings properly before his clients.

In addition to the general requisites which have been spoken of before, there are certain points in salesmanship which should be developed. They are not tricks of salesmanship since they are honest and fair, but rather the factors which distinguish the good from the mediocre salesman. To take them up in order, it is perhaps well to speak of:

(1) Enthusiasm. While bond selling must of necessity be a business of cold facts and figures, there is a certain spirit of enthusiasm which aids in making sales. The salesman must feel that his offerings are absolutely good, so good that he recommends them with warmth and a hearty manner. He must at all times feel the merit, the intrinsic value and desirability of what he is offering.

(2) Centralization. When a new issue of bonds is brought to the salesman's notice he must study most carefully all of the information relative to the issue. He must mark, read and inwardly digest, he must analyze and compare. If the issue is really desirable, certain salient points will appear. While he must know everything in regard to the issue, let him in making his offerings draw especial attention to the points of desirability which have most impressed him; the probability is that they will also impress his client. The same general remark will also hold true where the salesman has more than one issue to offer. He must not jump from one subject to another, and thus confuse the client and himself. Scattered shot is only good for small game.

(3) Observation. Under this head it is desired to recommend to bond salesmen the necessity for observation of the inclinations, ideas and opinions of the client. It is a good thing to emphasize those points in regard to a bond issue which appeal to the client. Likewise, under this head, may be considered the important item of closing business. Many salesmen succeed in interesting the client, but do not close many sales. There can be no more desirable accomplishment in a salesman, than the realization of the proper time for making the business firm.

There are many pitfalls in the path of the bond salesman, and one dangerous quicksand. The latter is misrepresentation and the salesman who falls into it never recovers; his total disappearance is a question of but a short time. The bond salesman who misrep-

resents any particular in regard to an issue of bonds to accomplish sales, has placed himself beyond the pale; he has betrayed the responsibility of his profession, and the faith of his client, and he deserves his fate. It is a pleasure though to consider that the morale of bond selling, both on the part of houses and salesmen, is high; and cases of misrepresentation are noticed chiefly on account of their rarity.

The pitfalls of salesmanship are numerous, and cause many troubles to the salesman. Fortunately these are not beyond repair, and to many salesmen a mere mention is enough. Briefly the following may be mentioned:

(1) The mistake of recommending bonds from the speculative standpoint. The salesman should sell his bonds on the basis of their absolute goodness and price as compared with other securities of equal excellence. Safety, income and convertibility are the great merits of good bonds. The wise salesman will not try to prophesy the movement of the market or the trend of money.

(2) The mistake of talking too much. It is always well to remember that the salesman's business is the affair of his house and his client, and he has no moral or other right to talk about it. Many desirable clients are lost through the tendency on the salesman's part to talk of his business.

(3) Unfair competition. No salesman has ever made an ultimate gain by belittling opposition houses or criticising their offerings. This policy often results in the loss of faith on the part of the client, a poor opinion of the salesman himself, and scepticism of the offerings of his house.

In this paper no effort is made to write of bond salesmanship in any other than the most general way, and what has been written will apply equally well to the office salesman or the one who goes out to make sales by solicitation. But there is another class of bond salesmen who contribute a large percentage of the total sales, that is the salesman who talks well on paper. Circulars and letters from the various investment houses go out to investors in surprising numbers, and it is safe to say that the class of literature sent out, the care in its preparation and the general form contribute largely to the impression formed in the investors' minds regarding the conservatism of the house and the character of the bonds offered. The salesman who prepares the circulars and dic-

tates the letters is a most important factor in the success of the business.

To prepare and write good bond-selling literature is an accomplishment, and requires a thorough knowledge of conditions, statistics and facts, as well as ability to write good, strong English. Good salesmen of this kind are rare, and are often of more value to the house than the men who meet the clients. Their work is not showy, and often is not appreciated for its full value.

No effort has been made in this paper to write on the duties or preparation of the salesmen who are "in the street," whose work it is, wherever there is a well-defined market, to go about the banks, insurance companies and other bond houses with offerings; since in these cases, the clients are themselves experts on bonds, the buying becomes simply a matter of trading. Rather, it has been the effort to write of bond salesmanship where there are difficulties to overcome, and where the relations of confidence and trust are established.

The responsibility of the bond salesman's position cannot be too strongly emphasized. It often comes to him to invest the savings of the old, the funds of trust estates, the legacies of widows and orphans and the surplus funds of business men. There can be no position more filled with responsibility. To be successful, the bond salesman must live up to his responsibility.

SELLING AMERICAN BONDS IN EUROPE

BY CHARLES F. SPEARE,
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For another generation and, perhaps, until the middle of this century, the United States will have occasion to look to Europe for capital. We are still in the development stage. Industrially, only beginnings have been made toward the accomplishment of great manufacturing and transportation results on which will rest the future economic standing of the nation. For the past decade there has been more work to do, in building, rebuilding, equipping, transforming, enlarging, tearing down and refitting our mills and railroads than there have been domestic funds with which to do it. The balance has been drawn from the surplus capital countries of Europe. This condition shows no sign of change. It would be easy to spend a billion dollars annually on American railroads alone for the next ten years and then they might not have sufficient capacity to meet the traffic demands of 1920. As much more might be put into the steel mills, the smelters, the cotton goods factories of the South, the implement producing plants, the car and locomotive and the electrical shops in the four corners of the land, and after all this was done, they would only be on a fair economic basis and barely able to turn out their maximum capacity in reasonable time. So, with our agricultural wealth rising each twelve-month, products of our gold, silver and copper mines increasing rapidly in value, our exports to foreign countries advancing steadily, there is all the time an offset in capital consumption to more than balance the scales on which is placed our new wealth. Without the accumulated and unemployed pounds sterling of the Englishman, the francs of the Frenchman, the Belgian and the Swiss, the guilder of the Dutchman and the marks of the German, the material progress that has been the lot of these United States ever since the close of the Civil War could not continue.

The foreign investor is necessary to the American banker. He has been the means of turning many a bond offering from dismal failure to partial success. The international bankers have cultivated him for the last fifty years and know that he will often-

times take securities that the American rejects and that he usually gets his reward in a heavy profit. He frequently has more foresight, better judgment, even more detailed knowledge of American railroad and industrial properties than the man at home. His vision is less clouded, his perspective more accurate, because he does not include in it the disturbing minutiae of finance but concerns himself with the fundamentals. Just as an European often has a clearer idea of American politics than a New Yorker or the man of average information wherever located in this country, simply because he sees only the broad movements in state and national affairs, so the investor in London, Paris, Amsterdam or Berlin judges better of the value of an American railroad bond, about which he knows the essential facts and from which all sentimental speculative influences are stripped, than the native investor who sometimes stands too close to the ticker when taking the measure of his bond.

Back of the average good judgment of the foreign investor is a vast amount of patience and willingness to give his investment a fair trial. Bonds that go from the United States to Europe usually stay there until they mature or the profit on them is so large or the interest yield so low, due to the premium they command, that they are no longer desirable to hold.

An instance of this has been given in the case of the United States 4 per cent bonds of 1907 which have just been redeemed. The bonds into which the maturing issue was converted were originally placed abroad in the 70's by the Rothschilds. Most of them went to Holland and to Germany, particularly to southern Germany where Frankfort was then the financial center of the empire. Blocks of the bonds have just been released. In Holland last year I came across several lots of Chicago & Northwestern and Chicago, Milwaukee & St. Paul divisional bonds that have been held for thirty to thirty-five years. The European man of means takes great pride in seeing his estimate of a property fulfilled, and he rarely abandons an investment until it has made good or shows itself to be utterly worthless. Many times, during the reorganization period of fifteen years ago, investors on the other side paid their assessments when the American balked at it. They lived to see their judgment vindicated and profits of great size credited to their account.

My subject has to do with the selling of American bonds in Europe. Included in this are the history of the introduction of bonds of American issue into foreign countries with a surplus for investment, the probable extent of the investment of different European nations in our securities, the ebb and flow of foreign capital in American securities, the ways in which bonds are placed on the markets of Europe with some suggestions concerning the method of facilitating the distribution of bonds among the small investors on the Continent. Treatment will also be made of that fascinating aspect of the whole subject, the French market and the pioneer work necessary in order to fertilize well that lucrative field for the American bond dealer.

For over forty years now the names of English, German and Dutch investors have been on the books of American banking houses.¹ Whatever figure might be named of the par value of the bonds placed abroad in that time would be guesswork. It would reach up into billions of dollars. The movement began when this government started to find a market for its bonds at the end of the Civil War. The country was poor enough then there were few men with capital to spare for investment, and suspicion of the permanent credits of the government prevailed in many conservative quarters. But the Dutch bid eagerly for a 6 per cent bond, guaranteed by the United States of America, which was offered at 60, and, therefore, returned them an income of just 10 per cent. Large blocks of these bonds were sold throughout Holland. The German investor, particularly the wealthy South German bought the sixes, too, with avidity and held them until they were redeemed. In most cases the proceeds of these bonds were converted into cash which was, in turn, placed in the 7 and 8 per cent bonds of such American roads as Chicago & Northwestern; St. Paul; Illinois Central; Great Northern; Norfolk & Western; Central Pacific; Union Pacific, and Missouri, Kansas & Texas. These bonds were subscribed to between 75 and 85. As a general rule it seemed to be felt, in those days, that the United States was on about a 10 per cent interest basis.

The English investor came on the scene at a later date. But when he did take part in the absorption of American securities

¹Early financial history contains the record of sales of American governments to Dutch bankers by Alexander Hamilton, then Secretary of the Treasury.

he did so on a very liberal scale. In the late 70's, but mostly between 1880 and 1885, and again between 1893 and 1898, his purchases were enormous. It is estimated that, in the decade between 1880 and 1890, \$3,000,000,000 of English capital went into foreign enterprises. I should say that fully 50 per cent of this came to the United States. The control of three-fifths of the American railroads was held in London. Not only the bonds but stocks of these properties were bought in quantity. America seemed to the English investor of those times the one profitable field for his funds. Our strongest banking houses had made good connections on the other side and they were able to secure the confidence of the distributing agents for the best class of bonds current. In committing themselves so exclusively to one country's securities the English made a bad mistake, and the panic of 1893 cost them tens of millions pounds sterling. They are now much more discriminating buyers than they have ever been and look more to steady income than to big speculative profits.

France is a comparatively new field. So far it has scarcely been touched and holds out the greatest possibilities of any in Europe. But it is peculiar territory and a difficult one to work and I am not sure but that conditions which now make it seem so attractive to the distributor of bonds will entirely change in another ten years. An industrial revival in France, demanding a large amount of domestic capital, would quickly absorb the annual surplus of the nation. However, it may be too much to suggest that France will ever imitate Germany or Belgium and derive an income of any size from anything other than her crops, wine, silks and the free-spending tourist.

Different considerations enter into the sale of American bonds to the English investor from those obtaining, for instance, when the investor in Holland is approached. It is much easier to interest a German in our securities than it is to secure attention from the Frenchman. Each looks at the question from a slightly different point of view. Investment traditions, local prejudices, the amount of income yield that will satisfy the prospective buyer, relations between government and investor, taxes on securities, the attitude of banker toward his client and the current state of the market which the seller of bonds is approaching with his wares are all factors to be considered.

Investment conditions have been changing throughout the entire world in the past two years. In a magazine article a year ago I had occasion to point to the fact that investors who, at the beginning of the twentieth century, were content with a yield of 3 to 4½ per cent were then demanding from 4 to 5½ per cent. This was due to several economic changes that had taken place. One was the higher cost of living which made it impossible for the income of 1906 to do the work of the income of 1895. The man with £20,000, for instance, invested in British consols yielding about 2¾ per cent, had to economize severely, whereas his annuity of £600 had, in other days, made him very comfortable. Further than this, under the influence of a rapidly rising gold production, the highest grade bonds were the ones in which the greatest depreciation occurred. British consols, for generations the premier security of the London market, and the financial barometer of international exchanges, dropped 30 points, or more than much less exalted issues. So the investor took the wise stand that, if the very best bonds could not be guaranteed against severe shrinkage he might as well place his funds where they would yield more and possibly suffer no greater decline. Therefore, instead of consols, he bought the 6 and 4½ per cent issues of the Japanese government which yielded him from 5 to better than 6 per cent and have, since flotation, fluctuated less than half as much as British consols. In place of old line British rails like Northwestern, Great Western, Brighton, etc., whose stocks have gone down from 60 to over 100 points in recent years, from a level that returned under 3 per cent, the British investor bought notes of American railroad companies which could be had to return an average of 6 per cent. German investors at about this same time refused to consider government issues on a 3½ per cent basis and they carried their point. Dutch investors have always demanded a good income, say 4 to 5 per cent, and they began to select securities that bore ½ to 1 per cent more. The French investment customs surround both Belgian and Swiss investors who similarly refused, after they had been able to get Russian bonds on better than a 6 per cent basis, to be attracted by the low interest-yielding securities which exclusively filled the portfolios of their ancestors. The rising credit of new countries, like the United States, South America, Canada, South Africa and Egypt and of former third-rate nations, as Spain and Italy, brought into competi-

tion with the ranking securities of the older empires a great quantity of bonds which were perfectly safe and had the distinction of providing a satisfactory yield. This condition is a fairly permanent one. Never again, I believe, will the pulse of the markets of the world beat in unison with the fluctuations in British consols and more and more, in spite of the deep patriotism that inspires the French investor, will the *rente* cease to be the channel into which the thousands of small investors turn their annual surplus. Germany is constantly clamoring for better returns on her money which the competition of trade and of broadening foreign markets incites. Holland invests perhaps too great a percentage of her income away from home because she wants as big a yield as possible. And this is the tendency prevailing whenever there are securities to be bartered for cash.

The insurance companies are the largest English buyers of American bonds. At the time of the San Francisco fire it was shown how vast the amount held by these institutions had grown to be. Most bonds are placed through the London agents of American banking houses or by their own branch offices. The English and the Scottish banks are also buyers on a large scale when the market seems to offer good opportunities. Bank purchases are invariably for the clients of the institution who have intrusted the selection of their securities to their banking adviser. The vaults of most of the important English banks contain a fair representation of high-class American railroad first mortgage and prior lien bonds. There are also in England companies that purchase American issues and issue their debentures against them, and from the profits on their holdings, pay interest on their own shares. Quite a bit of capital is invested in this way. The English market is pretty well scratched over. Englishmen do not have to be told about American railroads or of the best of our industrials. The question with them now is mainly one of yield, for they have a strong faith in the general destiny of the United States and are not afraid to invest their funds here when they can get the proper terms. It might be said of them that, latterly, they are more inclined to take hold of tested and tried bonds than invest in junior mortgages which have still to make their record.

It is on the Continent that the great future market for American bonds lies. That this fact is appreciated is shown by the num-

bers of representatives of American houses who have traveled there in the past year and a half sounding the people and trying to tap their reservoirs of capital. Wide-awake firms are establishing agents in all of the leading centers of Holland, Germany, Switzerland and Belgium, and there are already a half dozen branches of New York and Boston bond houses within a radius of a mile of the Bank of France in Paris. Instead of writing their circulars of bond offerings in the English language exclusively the up-to-date bond dealer to-day has to put it into French and German as well.

Circularizing is a popular form of bond introduction in parts of Europe. It pays in Holland and in Germany where a good deal is known of American conditions and also in Switzerland, but I regard it as a waste of time in France until more preliminary work of a pioneer sort serves to give the investor of that thrifty nation a closer acquaintanceship with our institutions, our corporations and our methods of financial operation.

While hundreds of millions worth of American bonds are held in Holland (and bonds that go to Holland stay there indefinitely, so that the aggregate of them is all the time rising) only a small percentage of the Dutch investors who buy American bonds from preference ever see them or cut the coupons from them. The Dutch method of investment is similar to that which exists in smaller form in England. What are known as "offices of administration," which are directed by some individual banker or group of banking-houses, exist. They take the funds of the investor and buy certain securities with them. Suppose, for instance, that the purchase was Union Pacific first 4's. Against this the investor receives a certificate of the "office" with an attached coupon. When the Union Pacific coupon falls due in January and July the corporation collects it and credits it to the account of its client. The client cannot exercise any voting privileges. These are waived in favor of the administrators. Of course, the latter would be controlled by the prevailing sentiment of their clients on any important decision. For the work they do the "offices" receive a commission of $\frac{1}{4}$ of 1 per cent. Another type of concern is that which purchases American and other foreign interest-bearing securities and issues its own 4 per cent debentures against them. These companies are patterned after the mortgage banks of Germany and the French Credit Foncier.

They have been very successful and have rarely defaulted their interest.

Holland will always be a good field for American bonds. The Dutch have made money in them and are satisfied with the yield. They have been steadily liquidating the enormous mass of Russian bonds (at one time estimated as high as \$500,000,000) and placing part of the proceeds in our securities. The country is rich in colonial possessions from which its income ranks only second to that of Great Britain. The people are economical and live to save and gain a competency. It is this quality of temperament that makes of Holland one of the great surplus capital countries of the world.

Going over to Germany we find that investment conditions there have their own peculiar forms. The great banks of issue figure prominently in all of the underwritings and the flotations of securities. They can, in many instances, make a bond go or they can blackball it with the investor. There are, of course, separate groups of banks which are more or less in competition with each other and constantly offering different lines of bonds. But there is not the pulling apart that is exhibited by the American banks which remind one of the "two and seventy jarring sects" of the Rubaiyat. They are a unit generally on fundamental questions of finance and one would not find one group taking a diametrically opposite stand from another group on the expediency of national investment in the securities of a foreign nation whose affairs just then happened to be passing through a critical stage. The Deutsche Bank, the Dresdner Bank and the Disconto-Gesellschaft, with an annual turnover of about \$50,000,000,000, are the great distributing mediums for Americans as well as for all other foreign issues. The Darmstader Bank has very close connections with banking firms in the United States which place a great many bond issues on the market, and the new American Bank in Berlin was formed a year ago especially to facilitate the placing of American securities in the hands of the German investor.

The original field of activity of the American bond dealer in Germany was in the southern part of the Empire. Frankfort was a ready buyer of American bonds long before the north German had any acquaintance with them. This was due to the success that had followed the placing of American governments in South Germany and the profits that had accrued from some of the western

railroad mortgages in the ante-receivership period. The family connection, too, between South Germans and the German banking interests in New York did a great deal to establish our best issues in the region of which Frankfort was the distributing center.

Now the Berlin banks are the power to be reckoned with. They have made a very successful propaganda in American bonds the past few years. It may be said without hesitation that no underwriting syndicate is ever formed to bring out an American bond or note issue but that the big Berlin banks are allowed to participate in it. They carry on their campaign largely through circulars. These they send to their regular clients, who number thousands, and to the countless small banks and private banking firms throughout the empire. They do a great deal of advertising, too, in the public press. The Berlin banks have taken the initiative in securing admission to the Berlin Boerse of the few American issues listed there. There are less than thirty American bonds now quoted on the Boerse and only three or four American stocks. Listing is a very expensive operation. It cost the bank, which was the sponsor for the Pennsylvania 3½ convertibles put on the Berlin Boerse a few years ago, something like 100,000 marks to complete the work. A good part of this was in the advertising which is required before the bonds can be located. Then the Boerse authorities demand an exhaustive report on the property whose bonds are up for listing. In the case I have cited this statement covered twenty-five long printed pages. The difficulty surrounding the listing undoubtedly accounts for the small number of American issues regularly quoted in Berlin.

The German investor asks a fairly good income on his capital. He likes his own railroad and municipal issues and will take them in preference to any other bonds, income being equal. One objection that he has to American bonds is that they have a constantly changing title. The transition of the first mortgage bond into some junior issue, as reorganization necessities arise, the creation of new-fangled types of bonds, as the "convertible" or the "collateral trust," do not meet with the approval of the German banker or his clientele. "You wrap the original bond in many coverings like an onion," a Berlin banker said to me, "without giving new value to the bond or creating fresh assets for the security." To get back to the original issue would require the most expert bond advice. The

investor who buys a bond which is nearest possible to the road and sees it transformed into several different types, finally begins to wonder what his equity is should he need to exercise it. This is one great drawback against the popularizing of American bonds throughout Europe.

Switzerland is a smaller market than those we have been dealing with but one that has a good surplus for investment and is friendly to Americans. I am told that about 75 per cent of the bond business with the United States is done through one house which has been selling bonds to the Swiss investor for a quarter of a century. The Swiss Bankverein is one of the large distributors and a subscriber to most of the best underwritings. The Swiss likes his own state railroad issues and wants about the same income as the German and the Dutchman. Geneva, Zurich and Basle all have exchanges on which are to be found a fair number of American securities and the leading Swiss newspapers carry quotations of bonds of our railroads.

The fascinating feature of the French market, from the point of view of the average American dealer in bonds, is that it is unexploited. It is fallow ground from which fair crops may be harvested if the right kind of seed is sown there. It is a market worth making a great deal of effort to cultivate. The French are the thriftiest of the investing people of Europe. The Italian lives as closely and saves as much in proportion to his income. But he is not an investor in securities. The yearly surplus of France, available for investment, must be some milliard francs. At various times in the past two or three years there has been an uninvested supply of capital to French credit of from \$400,000,000 to \$600,000,000. Thrift is the national virtue. It is practiced by everyone and is a means to an end,—that end being independent old age, a marriage *dot* for the daughter and a portion, at maturity, for the son. The "woolen stocking" of the French is proverbially well lined. From it was drawn the billion dollar indemnity that Bismarck imposed on the Republic at the end of the Franco-Prussian war and which he expected would be a load under which France would be crushed. The debt was liquidated in surprising time. Then did Europe appreciate first of all the saving quality of the French and the amount of their reserves constantly in hand. It was a revelation significant to borrowing nations of the Continent, and from that

time to this, France has steadily been petitioned by borrowers to place a part of her funds in their bonds.

This appeal has resulted in the investment of nearly \$2,500,000,000 in Russian bonds alone. France has been Russia's banker almost exclusively for the past twenty years. Naturally, having invested so liberally in government issues, the French were attracted to Russian industrials. In them their experience has been unfortunate. While they have never lost a coupon on Russian funds, though the market value of them has greatly depreciated since the Russo-Japanese war, they have lost interest and much of their principal in ventures of other sorts. Mining shares particularly have been the *bête noir* of the French. Some Russian mines, bought at 1,200 to 1,500 francs, have shrunk to a few hundred francs. Spanish mining securities, too, have been unprofitable. On the whole, however, the Frenchman has taken as his motto: "Buy industrials if you would live well; buy governments if you would sleep well," and adhered to the last half of it. He has been content with the smallest yield of any investor, and consequently the great bulk of his funds has gone into the very safest issues on the market.

Alfred Neymarck, the eminent French statistician, estimates that the total securities held by the French people approximate \$18,600,000,000. The population of France is about 40,000,000 souls, so this means a per capita investment of \$465. The wealth of the country is placed at \$35,000,000,000. About \$13,000,000,000 are represented in foreign investments. The value of foreign investments made in 1906 alone was \$850,000,000. The Frenchman is prone to locate his funds where the tax collector cannot get at them. While the wealthiest in regard to available capital, France is the sorest taxed of any nation and is continually raising her assessments on her people to meet deficiencies in the budget caused by official extravagance. It is reckoned that the value of the yearly income of the individual is absorbed by taxes within six years and his capital in fifty years, and some economists claim that the fortune left by parent to children is wholly exhausted by taxation in less than a generation. The *fisc* is the hobgoblin of the *rentier*. Every means known to human ingenuity is resorted to in the attempt at evasion of taxes and keeping secret the personal effects of the individual. We know how quantities of securities are held in this country to the credit of the Frenchman so that he may not

have to pay the government and bourse taxes on them; how a year ago there was a steady outflow of capital and securities from France into Switzerland and Belgium until the rate of exchange of Swiss and Belgian cities on Paris moved in their favor,—an uncommon occurrence. The inquisitorial policy of the government threatened to exhaust French markets of capital and the export of capital was one of the influences which determined the higher discount policy of the Bank of France. Socialism, which is rising more rapidly in France than elsewhere on the Continent, has its terrors for the French investor and makes him loath to place his funds in bonds or shares that might be affected by political or social revolutions.

This antipathy to home issues is stronger now than ever, and coming at a time when the *rentier* is beginning to doubt the wisdom of having so large a part of his principal in Russian bonds, it gives splendid opportunities for the American bond dealer to drive home his arguments and enter a wedge that cannot easily be dislodged. The Pennsylvania Railroad loan of \$50,000,000 placed in Paris in 1906 and now listed on the Paris Bourse and the loan of \$20,000,000 of the New York, New Haven & Hartford Railroad have broken the ice. As money conditions the world over improve there will, no doubt, be other issues located in Paris and quoted there on the official sheet of the Bourse.

The bond dealer in the United States who is eager to place securities in France should first study the type of investor with whom he is to deal. The unique personality of the French *rentier* makes exploitation in France much different from that in any other country. His character is peculiar and without parallel. Individually the French investor's influence is infinitesimal; collectively his power penetrates the money markets of the world and determines their rate of interest. Saving is taught the French boy and girl just as soon as they are able to appreciate the value of money. The schools make economy a virtue and an incentive. Thrift is a quality which, if strictly practiced, brings its reward in the form of ten-francs books of deposit at the end of the term. The government savings banks get these first few francs. The limit of deposits in them is 1,500 francs (\$300). When this sum is reached it is reinvested by the bank authorities for the benefit of their depositor in 3 per cent *rentes*. These banks are very popular with the peasants, farmers and small shop-keepers who have already bought

with their savings, since about 1880, when France began to show a surplus, \$4,300,000,000 of *rentes*. Of the total French debt in 1905 of \$5,878,822,695, the sum of \$5,005,246,780 was held at home.

In addition to the government savings banks there are the postal savings banks, different organizations that make a specialty of receiving the funds of members and of investing them, and finally, the great credit banks with headquarters in Paris and branches that touch every district and parish in the Republic. These institutions, of which the Credit Lyonnaise, the Société Générale, the Comptoir Nationale, the Banque de Paris et des Pays Bays and half a dozen smaller concerns are most notable, are the great bond-distributing forces of the nation. They form the syndicates that take over immense issues of Russian colonial or American bonds and place them with their clients. The Credit Lyonnaise has nearly 450,000 individual accounts, while the aggregate accounts of the five big Paris banks is close to one million. The managers of these institutions become very intimate with their depositors. It is their judgment which determines the character of the bond into which the funds of the client go. The implicit confidence that the *rentier* places in his banker or "agent de change" is one of his most astonishing qualities. It is a confidence rarely misplaced.

The great handicap to placing American or any other foreign securities in France is the high tax imposed on all bonds or stocks listed on the Bourse. The taxes are three in number, viz., a stamp tax, a transfer tax, and an income tax. It cost the Pennsylvania Railroad about \$200,000 to list its bonds in France. This will be the yearly impost, exclusive of the cost of collection and the commission to agents, so long as the bonds live and the present laws exist. The stamp tax may be paid in full, amounting to \$1.20 per \$100 face value of the sum issued in France, or six cents per \$100 per annum, payable quarterly. This tax must cover the number of securities to be issued in France. For stock this amount cannot be less than one-tenth of the capital and for bonds one-fifth of the total amount outstanding. On coupon bonds the annual transfer tax is one-fifth of 1 per cent on the average price of the year preceding taxation. The income tax is 4 per cent on the revenue. The transfer of a bond from one estate to another, in the event of

the death of the holder, calls for a tax of 2 per cent. Summing up the whole effect of the taxes we find that it amounts to about four-tenths of 1 per cent per annum. In other words, bonds that could be sold flat in New York to yield 4 per cent would only bring about 3.60 per cent in Paris.

Efforts have been made to remove or commute these taxes, but with no success. They will probably stand for some years to come. The American banker must take them into consideration if he would enter the French market. There is, of course, a loophole. This is provided by carrying bonds owned by French investors in the country of issue. It is being done now with some success. But it will never get beyond certain proportions. The small investing class would not buy bonds that they could never see or from which they could not personally cut the coupons. They like to have and to hold their bonds; to see the physical substitute for their slowly accumulated savings. In time it might be possible to issue French bonds against American holdings, but I doubt whether this, even, would be very popular.

It is difficult to impress on the American the small supply of capital that the individual French investor, towards whom the former is working, possesses. Perhaps this may be done by showing the value of individual holdings of French *rentes*. The investors in *rentes* who receive less than 1,500 francs (\$300) income annually are more than 3,000,000. There are over 600,000 who draw less than 30 francs (\$6) income a year, and no fewer than 1,600,000 who derive a revenue of but 20 francs (\$4) from their investment. The income of 30 francs means an investment of 1,000 francs or \$200. This brings forward another matter of detail to which the American will have to look sharply before he makes a success of the French flotation of his bonds. He must issue bonds of small denominations. Bonds of \$500 and \$1,000 par value will not sell to any extent in France. Issues of \$100 or \$200 ought to be the maximum size where popular subscription to them is sought. A third detail—and this would be a natural sequel of the listing of the bonds on the different bourses—is the desirability of having the bonds quoted daily in the papers which reach the bulk of the French people. The Frenchman likes to see his bond quoted and to know each day what it is worth. It is claimed that, in order to get a bond listed in France, the press has to be bribed—"sugared"

they call it—and that this bribe, sometimes as high as 2 per cent, should be added to the cost of listing. I do not know about this. What I do know is that American bond dealers have been guilty of selling in France bonds at from 2 to as high as 8 and 10 per cent above the regular quotation on the New York Stock Exchange. They could not do this were the prospective buyer provided with an official quotation of his favorite issue.

As near as I can estimate, from figures procured in the most reliable quarters in Europe, the gross holdings of English and Continental investors in American securities—and the bulk of these is represented by bonds—are valued at from \$6,000,000,000 to \$6,500,000,000. Of this Great Britain, whose foreign investments are said to be more than those of all other countries, holds \$4,000,000,000; Germany \$1,000,000,000; Holland \$600,000,000 to \$700,000,000, though Mr. Hill, the American Consul at Amsterdam, puts the figure much lower; France \$300,000,000 and Switzerland \$100,000,000. M. Leroy-Beaulieu believes that French capital will flow into American securities in increasing proportion as the years go on, and that, in another decade, the investments of France in the United States will be greater than in any other country save Russia. Not all people agree with M. Beaulieu on this subject, but the French promises are bright. So they are from Great Britain, Germany, Holland and Switzerland. For a generation money will be in good demand here and interest rates will average higher than in Europe. The best income, therefore, will be on American securities; and as the European investor is gradually being educated to better returns on his capital, he will look westward for the field in which to place it to best advantage. Whatever the absurdities of our currency system and the irregularities of some of our high financiers, the investor abroad realizes that these things cannot destroy the country's wealth or exhaust her resources, and that the trend of values here, barring some interruptions, is upward.

METHODS OF AUDITING AND ACCOUNTING IN A BOND HOUSE

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Before undertaking to outline a method of auditing and accounting in a bond house, it would seem desirable to consider the nature of a bond business and what a bond house is called upon to do. A bond house is a partnership or corporation (usually a partnership) the principal business of which is to buy and sell bonds. In the conduct of its business it may buy and sell as principal, or it may buy and sell as agent, *i. e.*, the proprietors may be bond merchants, or they may be bond brokers or both. As bond merchants they may buy and sell direct, or they may buy and sell through brokers. To the end of facilitating its business a bond house or some of the partners may hold memberships in stock exchanges. For outside trading the house may have a large staff of salesmen, some of whom are local, visiting investing offices and prospective purchasers in the financial centers where the bond house is situated, others of whom are traveling salesmen, going from city to city to dispose of issues on hand. Each salesman may have his own constituency, working for the house on commission, or on salary, or both. Bond houses which purchase state and municipal issues direct, also have representatives who visit the state capitals, county seats, and city offices where bonds are to be disposed of, for the purpose of examining the laws, ordinances and proceedings authorizing the issues as a means of determining their validity before bids are submitted.

In the usual course of business bond houses frequently act as managers of syndicates; as fiscal agents for the purpose of paying interest on various issues of bonds, and as underwriters of bond issues. They may participate in these underwritings, or in others; they may participate in syndicates, joint accounts and pool accounts; they borrow money and deposit bonds owned as well as bonds held for

customers as collateral; they borrow bonds for deliveries on short sales; they may also, for the accommodation of customers, do a private banking business. These several relations and functions are mentioned to indicate the character of the accounts to be kept and audited.

The Purposes and Advantages of an Audit

The purposes of an audit may be briefly stated as follows:

1. To prove the clerical accuracy of the bookkeeping.
2. To verify the authority for entries.
3. To prepare a true statement of financial condition.
4. To prepare a true statement of earnings and expenses, and of profits and losses.
5. To determine whether any of the employees and agents have been guilty of infidelity to the proprietors or their co-employees and co-agents.

To a concern whose business is so largely conducted by employees and agents, whose clerks and messengers are entrusted with so much of value that can be easily converted into cash, and which itself carries on a business as trustee and serves in so many fiduciary relations it would seem unnecessary to suggest the desirability of an audit. The accounts being kept by clerks and frequently under high pressure, proof of the clerical accuracy of the bookkeeping is essential to a correct statement of financial condition, or financial results. A business which combines its own assets with the assets of customers, and which accepts various trust relations, should know, for its own protection, that its own financial condition is properly represented in its accounts. A house which trades for itself as well as for customers should have stated by some disinterested person that its profits and losses are truthfully reported. As the many purchases, sales, deliveries and payments are conducted by employees, those who have acted in good faith should have some independent means of having it represented to their employers that each has properly accounted for money and securities that have come into his possession. Moreover, it might be made a valuable trading asset to a bond house to have it known to customers that their accounts are regularly audited by a reputable firm of accountants.

Method of Making the Audit

Owing to the peculiar nature of the business, it is of advantage to begin the audit after the close of the exchanges. Three o'clock in the afternoon is usually chosen as the time most opportune for taking possession of the office. It is generally considered desirable not to advise the office staff when an audit of the books and accounts of a bond house, or in fact any business, is to be made. The officers and employees should not be given an opportunity to adjust either the books or the cash and securities in hand for the expected visit of an examiner.

Proof of clerical accuracy of the bookkeeping and verification of authorities for entries do not differ materially from similar proof and verification in audits of other concerns and therefore need not be described in detail.

Those features of the audit which look toward verification of present financial condition, or assets and liabilities, begin with the balance sheet, or, in case no balance sheet has been prepared, with the verification of the asset and liability accounts of the trial balance. At the time of taking possession, the cash on hand should immediately be counted and trial balances of the several ledgers drawn off, together with lists of the securities owned or held for customers and of the securities deposited with other concerns. This plan is suggested for the reason that in the bond business changes are constantly occurring, that is, the securities owned or held for customers to-day may not be the same to-morrow, and substitutions of collateral with banks to secure loans are constantly being made. It is always desirable to get as much information as may be possible concerning the accounts before any changes occur. As a part of the audit of cash, a verification should be made of the bank balances. This verification is obtained by certificates from the several banks as to the amount on deposit. All confirmations and certificates should be mailed directly to the auditor making the examination. This is best accomplished by written request, approved by an officer of the company under examination, enclosing stamped envelope addressed to the auditor. The balances shown by the bank pass books should never be relied on—they are not final, being memoranda only, and are too easily modified to conform to the accounts.

All securities on hand, whether belonging to the company or

held in trust, should at once be taken into possession by the auditor, which possession should not be released till both the cash and the securities have been counted, and the securities have been checked against the list previously referred to. The amount of securities counted, whether owned or held for customers, should agree with the ledger accounts of securities on hand, unless it appear that some of them are in the possession of other parties, in which case confirmations must be obtained in the same manner as the verification of bank balances. In Wall Street this is commonly called "balancing stock." In counting coupon bonds, it should be noted whether or not all undue coupons are attached. If any undue coupons have been detached or are missing, this fact should be noted and the reason for such a condition be determined, as by detaching coupons not due, the value of the bond has been depreciated and the account should be reduced correspondingly. As to the ownership of bearer bonds, tests may be made by comparing the bond numbers with the numbers shown in the books, or delivery slips. If the numbers do not agree, it is an indication that the bonds may have been tampered with, and it may develop that missing bonds have been temporarily replaced by other bonds for an expected audit.

Aside from liabilities to customers for securities held for their account, the liabilities of a bond house are verified in the same manner as in other audits. For the purpose of this verification, statements should be mailed to all customers on the same afternoon that the examination is started, showing their ledger balances and the securities held for their account, with the request for confirmation. Statements should also be sent to the different banks, with which the house may do business, as to the amount of loans, and also as to the securities in their possession to secure loans, asking for confirmation.

The verification of earnings and expenses and of profits and losses is made as in other audits, except that the profits or losses on trading for customers should be carefully allocated from the profits and losses on trading for the house, the profits and losses of customers operating to increase or decrease the liabilities of the house to customers.

Underwriting

One of the most important parts of the business conducted by many bond houses is the underwriting of bond sales. The underwriting of a bond issue is a contractual undertaking by the bond house insuring the sale of the issue at a stipulated price, the essence of the contract being that in case the issue is not disposed of by the banker or selling agent at the price agreed on or better, the bond house will take such part as remains unsold. This conditional or contingent liability may not be set up on the books. When a bond house underwrites it usually becomes the selling agent or broker as well.

The bonds are offered for sale by circular letters mailed to customers, through traveling salesmen and by advertisement. In this respect the bond business is similar to that of an iron broker or coffee broker. Bonds are taken in large quantities (wholesale) and sold in wholesale lots to large houses or in small quantities (retail) to investors and small dealers. When the term of the underwriting expires the bond house takes over the unsold portion of the issue as bonds purchased.

In auditing these accounts, it is necessary to call for the underwriting agreement, which generally shows the amount underwritten, the price guaranteed, rate and nature of commission, etc. The first entry appearing on the books in connection with a transaction of this nature should charge "bonds owned," and credit the party or parties from whom the bonds were purchased at the stipulated price. As the bonds are sold, "bonds owned" should be credited with the proceeds. In checking the cash receipts or the charges made for the bonds sold, frequent reference to the order should be made to see that the price charged is correct and that the full amount represented by the bonds sold and delivered has been credited to the account. The bonds which have not been disposed of and which are represented by the balance remaining in the account should be included in the count of securities on hand, or, if on deposit with other parties, confirmed in the usual manner.

Syndicate Managers

Bond houses very often act as syndicate managers. They may or may not participate in the syndicate, as the case may be. In
(288)

transactions of this nature an account with the syndicate should be opened on the books and this account should be charged and credited with all of the transactions relating to the syndicate. To audit these accounts it is first necessary to examine the syndicate agreement. Agreements of this class generally show in detail the nature of the business to be transacted, the rate of commission the syndicate managers shall receive, and all of the data necessary to a complete understanding of the situation. If the syndicate owns securities or has any securities temporarily or otherwise under its control, they should be verified by actual count or by confirmations. No charges or credits should be made to the syndicate account other than those authorized under and in accordance with the terms of the syndicate agreement. A bond house will frequently participate in a syndicate agreement or underwriting with an outside party as the syndicate manager. In this event, a certificate should be obtained from the syndicate manager as to the amount the bond house has contributed to the syndicate. The amount so determined should be reconciled with the ledger account. The syndicate agreement will sometimes show what these contributions should have amounted to.

Fiscal Agents

Many bond houses act as fiscal agents, for the purpose of paying interest on certain bonds. The bond house should keep a separate account on its books with each of the several concerns it may represent. These accounts may frequently, with advantage, be subdivided by coupon number or maturity dates. The accounts should be credited with the money received from the principal and charged with the coupons paid. The paid coupons should be forwarded periodically to the principal, together with a statement of account. A receipt should be taken for the canceled coupons so returned. In auditing these accounts, all paid coupons which have not been returned to the principal should be counted. The ledger balance should be confirmed by means of a certificate from the principal and the amount of paid coupons on hand.

Proof as to the Fidelity of Employees

In general, the proof of the fidelity of employees of a bond house comprehends the same features as similar proof for any

financial institution. The verification of cash and securities has already been described. In auditing the books and accounts it is a wise precaution that may with profit be taken (unless the privilege is denied by the officers, in which case an exception may be noted) for the auditor to open and handle two or three days' mail. This will aid the accountant in many ways, such, for example, as in the verification of items in transit. Many irregularities have been concealed by using to-day's receipts to cover yesterday's shortage. Such a condition would necessarily be developed by this plan, and the opening and handling of the mail may also develop other clues for the accountant.

In connection with his audit the accountant should determine whether or not all of the interest on the bonds owned and on those held for customers has been collected at each interest date during the entire period covered by the audit. All deliveries of bonds should be verified by the receipts signed by the party who received the bonds, and the date of the receipts should be checked against the date of delivery shown by the books.

Accounting Methods

Nearly all bond houses are constantly receiving bonds from customers for sale at certain prices, or for exchange for new securities, or for other reasons. All such deposits should be recorded immediately on the general books under captions which would properly represent the trust relations under which they are received. They might be entered upon the books at some arbitrary figure, par is suggested, but whatever figure is used, it should always be uniform. Unfortunately, some bond houses fail to make any record of these accounts on their general books and many do not even keep duplicates of such receipts as may be given for securities so received. Such a practice is a constant inducement held out to employees to make use of such securities for their own purposes, as no accurate verification of the securities which should be on hand is possible under such a system. In the cases referred to, no confirmations from customers can be obtained by the accountant, as there is no record on the general books as to who the customers are. The same observation would apply to money received as deposits accompanying bids for securities. In many instances these checks are held without being recorded on the books until it is subsequently

decided whether bids will be accepted or the money returned. Where a bond house fails to make an immediate record on its general books of all securities received by it for any purpose whatsoever, and of all money received, there is always a possibility that a shortage may exist in the accounts which would not be detected by a most thorough or exhaustive audit. If irregularities were detected it would be by fortuitous circumstances rather than by application of methods based on professional care and foresight.

The accounting system in a bond house should be so arranged that the general books will have a controlling account over each of the several cages and departments. The general books should show what cage No. 1 is responsible for, what the coupon department is responsible for, what the foreign department is responsible for, and so on. Each of the departments could, under this method, be audited independently. Errors would be localized, and the blame, when there was blame, placed on the proper party. When entries are made of securities deposited for safe keeping, or of moneys deposited on bids, the books or memoranda showing these transactions should also be made a part of the system under control and proper accounts opened on the ledger, as a means of informing the officers of the company and the auditor, as to the amount of the liability of the house on these accounts.

BONDS AS ADDITIONAL BANKING RESERVE.¹

BY WILLIAM C. CORNWELL,
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Beginnings of Bond Buying

Twenty years ago the loanable funds of interior banks were used almost wholly in discounting business and accommodation paper, for local customers. The loans available for this purpose varied in different localities, but after setting aside a slim cash reserve and discounting all the good paper offered, the banker rarely had a surplus and quite frequently the supply of funds was insufficient. By reason of this scarcity of money, high rates were asked and willingly paid.

From year to year, however, wealth increased in the community, deposits grew larger, interest rates declined and at certain seasons of the year, the country banker finding his money accumulating and the demand falling off, began to apply to his New York correspondent for commercial paper offered by large concerns in the metropolis. With the coming of the trust era and its consequent combination of many smaller enterprises, home manufacturing plants were merged into great corporations with sufficient capital, and ceased to be borrowers at the local bank. The accumulating surplus of unemployed funds, thus further enlarged, called for new channels or sluggish dollars would not pay for their keeping. Wealth was increasing steadily and deposits growing correspondingly. To join in some of the underwritings was one way of providing outlet, but this never became a very successful method outside of the great money centers. The best of the underwritings were monopolized by the larger capitalists there, and one or two finger burnings with the poorer ones cured the desire of the country banker for further experiment in that direction. There were, of course, mortgage loans of varying degrees of desirability, but the amount of these became inadequate in proportion as different sec-

¹Much of this paper is taken, with the consent of J. S. Bache & Co., from a publication of theirs, entitled "Bonds as a Safety Reserve for Banks," written by William C. Cornwell.

tions developed, although they are still available in the agricultural states. Commercial paper had become somewhat unpopular through many losses in 1893.

The expedient of investing idle funds in some of the higher grade bonds was gradually forced to the attention of interior bankers, and while the returns were small compared with the old-time interest rates, yet the stable and satisfactory character of such investments, the availability of the bonds under pressure, and their steady interest-yielding quality, made this plan of caring for a proportion of the assets of a bank more and more a favorite one.

Inception of Reserve Idea

Another consideration, beside that of investing idle funds, had been occupying the attention of bankers for some years. The recurrence of panics, large and small, had put to test, at intervals, the stability of banking institutions. Either by his own experience or by that of others, there had been forced upon the attention of the interior banker, the problem of strengthening his resources, so that his position, fully fortified in ordinary and prosperous times by the usual cash reserve, would not be jeopardized when clouds gathered on the financial horizon and stormy weather threatened or prevailed. To keep on hand at all times a cash reserve of sufficient proportions to insure safety in any emergency would mean to hold idle 50 per cent of deposits with consequent loss to stockholders. The high-class listed railroad bond, safe, yielding steady returns, quickly convertible into cash or available as collateral at lowest charge for interest, seemed to furnish ideal material for a second reserve as well as employment for surplus funds. Tried in a limited way at first, and gradually increasing in favor, the usage has become widespread, of maintaining a reserve in high-class bonds in addition to the regular cash reserve.

Investment by Trust Companies

While this evolution in character and operation of investment was going on among banks of deposit and discount, there was a parallel movement in trust companies, carried farther and of different origin. Beginning in 1897 and extending to the present time, an enormous growth took place in these institutions. During this period deposits in trust companies increased from six hundred

millions to twenty-two hundred millions. These great and constantly accumulating funds, shut out in a degree from the ordinary commercial field, demanded some safe and profitable channel of employment. This was first supplied by loans on real estate, but these, while safe, were found to be stiff and unyielding when cash was wanted. Only a portion of assets could be so invested, because deposits fluctuated and something was needed which, while safe and profitable, could also be readily converted into cash. The trust companies then gradually became aware, as had the banks of discount, and perhaps before these latter, that the three requisites were completely combined in high-grade railroad bonds. Further, too, because of the quick convertibility of bonds, it became necessary to carry only a small cash reserve, and profits were thus correspondingly increased. In this way trust companies began the investment of a part of their cash reserve and a large proportion of their assets in high-grade investment securities absolutely safe, reasonably profitable, and quickly marketable for cash.

Inquiry Concerning Bond Holdings of Banks and Trust Companies

The reports of banks and trust companies for the last dozen years or more make it quite evident that a gradual investment has been made in bonds other than government bonds, and that the investment has been growing larger each year; at least, until about a year ago, when bonds from extraneous causes began to decline in value. There has heretofore, however, been no way of making an accurate or even fairly accurate estimate of the extent to which bank funds were so invested or of the classes of bonds so held. The reports of national banks to the comptroller of the currency do not furnish these statistics because the head under which bonds other than United States bonds are reported to the comptroller (owing to a retention of an obsolete classification) reads: "Bonds, securities, judgments, claims," etc. The reports of state banks and savings banks to their respective commissioners furnish information only in a few states and territories, and the reports of trust companies, while much more definite in this respect, are incomplete in many states.

Nevertheless, from such statistics as have appeared it is apparent that this investment in bonds has been proceeding in growing

volume for several years and that it has attained at the present time remarkable proportions. It is, therefore, gratifying to be able to record, with many particulars, and with substantial accuracy, the extent to which this investment in bonds has developed. This has been made possible by the investigation made by the banking house of J. S. Bache & Co., New York, and conducted by the author. A letter of inquiry was sent to seven thousand banks and trust companies in the United States, the list including every institution of \$50,000 capital and over.

The inquiries in this letter pertained to the kinds and amounts of bonds carried, and to the opinions of the banker regarding the advisability of keeping a reserve in high-class bonds and the proportion of deposits which should be so employed. An opinion was also requested as to the character of bonds considered best for this purpose and as to the advisability, in the vicinity, of dealing in bonds with private investors. Nearly four thousand banks sent in answers, many replying in detail as to exact kinds and amounts of bonds, and expressing opinions and conclusions founded upon years of experience in their respective localities. Expressions of opinion, honestly given by intelligent business men as to undertakings in which they are engaged, are always of great value to those in the same line of operations. When the inquiry is widely made and the response received in statistics and in opinions, as full and as pertinent as in this instance, the published result, while it cannot fail greatly to interest, is of much more than ordinary benefit to the great army of earnest and thoughtful men, who conduct the banking operations of the United States.

Tables have been prepared from these statistics (received from nearly 4,000 out of about 7,000 banks addressed), and from statistics of deposits in national and state banks and trust companies, for the entire country.

Table A shows the total deposits in each state, and an estimated total of bond holdings, obtained by applying to the total deposits the ratio which the reported bond holdings bear to the deposits of banks reporting. By aggregating the results for all the states, the total bond holdings throughout the United States are arrived at with substantial accuracy, as well as the ratio which such holdings bear to total deposits.

TABLE A.

DEPOSITS AND ESTIMATED BOND HOLDINGS OF NATIONAL AND STATE BANKS AND
TRUST COMPANIES IN THE UNITED STATES (DOES NOT INCLUDE
PRIVATE BANKS AND MUTUAL SAVINGS BANKS).

STATE.	Total Deposits (excluding U. S. deposits).	Estimated Total Bond Investment (excluding U. S. Bonds).	Ratio of Estimated Bond Investments to Deposits. Per cent.
Maine	\$50,391,000	\$18,256,000	36.23
New Hampshire	18,782,000	4,031,000	21.46
Vermont	28,596,000	7,099,000	24.83
Massachusetts	150,595,000	25,586,000	16.99
Boston	357,174,000	51,290,000	14.50
Rhode Island	123,081,000	43,324,000	35.20
Connecticut	81,293,000	23,601,000	29.03
 New England States ..	 \$809,912,000	 \$173,187,000	 21.38
 New York	 \$603,908,000	 \$140,631,000	 23.29
New York City	2,501,896,000	335,504,000	13.41
New Jersey	257,627,000	111,805,000	43.40
Pennsylvania	715,860,000	203,161,000	28.38
Philadelphia	534,059,000	116,117,000	32.51
Delaware	16,175,000	6,411,000	39.64
Maryland	114,186,000	41,595,000	36.43
District of Columbia	46,250,000	5,368,000	11.61
 Eastern States ..	 \$4,789,961,000	 \$960,592,000	 20.05
 Virginia	 \$90,135,000	 \$5,781,000	 6.41
West Virginia	69,138,000	3,655,000	5.29
North Carolina	41,016,000	324,000	.79
South Carolina	33,128,000	222,000	.67
Georgia	61,503,000	911,000	1.48
Florida	24,477,000	656,000	2.68
Alabama	26,268,000	774,000	2.95
Mississippi	40,125,000	2,284,000	5.69
Louisiana	92,762,000	3,232,000	3.48
Texas	117,725,000	1,732,000	1.47
Arkansas	22,337,000	1,892,000	8.47
Kentucky	111,134,000	8,870,000	7.98
Tennessee	88,647,000	12,021,000	13.56
 Southern States ..	 \$818,395,000	 \$42,354,000	 5.18

STATE.	Total Deposits (excluding U. S. deposits).	Estimated Total Bond Investment (excluding U. S. Bonds).	Ratio of Estimated Bond Investments to Deposits. Per cent.
Ohio.....	\$510,436,000	\$94,545,000	18.52
Indiana	167,922,000	38,143,000	22.71
Illinois	252,921,000	42,794,000	16.92
Chicago	611,272,000	103,427,000	16.92
Michigan	258,466,000	37,261,000	14.41
Wisconsin	179,092,000	39,254,000	21.92
Minnesota	163,492,000	19,459,000	11.90
Iowa	242,012,000	7,856,000	3.25
Missouri	217,157,000	41,606,000	19.20
St. Louis	262,525,000	35,277,000	13.44
Middle Western States.	\$2,865,295,000	\$459,712,000	16.04
North Dakota	\$28,471,000	\$209,000	.73
South Dakota	29,614,000	598,000	2.02
Nebraska	129,046,000	2,748,000	2.13
Kansas	111,311,000	6,585,000	5.92
Montana	34,790,000	2,128,000	6.12
Wyoming	8,580,000	133,000	1.55
Colorado	105,309,000	14,484,000	13.75
New Mexico	10,221,000	40,000	.39
Oklahoma	23,114,000	2,120,000	9.17
Indian Territory	14,279,000	166,000	1.16
Western States	\$494,735,000	\$29,211,000	5.90
Washington	\$66,324,000	\$3,113,000	4.69
Oregon	34,126,000	8,323,000	24.39
California	520,662,000	90,664,000	17.41
Idaho	10,032,000	498,000	4.96
Utah	35,313,000	3,417,000	9.68
Nevada	4,103,000	No report.	
Arizona	9,964,000	611,000	6.13
Pacific States	\$680,524,000	\$106,626,000	15.66
Total United States.	\$10,458,822,000	\$1,771,682,000	16.94

From these tables it appears that the New England national and state banks and trust companies lead in the proportion of deposits invested in bonds, with a percentage of 21.38, while the Southern

States are lowest, with a percentage of 5.18. It will be noted at once, as a general rule governing such investment, that the more fully developed states, and those which have acquired their wealth and standing through the manufacturing industries, are above the average in respect to bond investment, while the agricultural states, particularly those which are in the developing stage, are below the average.

The bankers of New Jersey lead the United States in percentage of deposits invested in bonds other than government securities. The New Jersey banks have 43.40 per cent of their deposits in bonds. This is probably due in large part to the fact that the savings bank law of the state, approved in April, 1897, is liberal. Such legislation, while not bearing directly on the subject of investment for banks and trust companies, has in all states an influence on such bank and trust company investments. Probably another reason why the bankers of this state invest so largely in bonds is to be found in the fact that the farm mortgages of New Jersey are lighter in proportion to value than in almost any other state. The sweeping law of 1893, which exempted from taxation all the municipal securities of the state, without exception, added another very valid reason for such investment.

New Mexico brings up the rear in respect to bond investment. The banking industry in that state is an infant industry, comparatively speaking. The banks were created for the financing of the local undertakings of a country barely entering upon the development stage. Under such conditions, it is both natural and right that the local resources of the country should be the security upon which the deposits are loaned. The same remark applies to the Dakotas and several other states which run low in investments.

The showing of the South in respect to investments is somewhat of a surprise. With the exception of Tennessee, not one of these states appears to have developed any strong tendency toward the use of funds in this way. This is largely explained, on broad grounds, by the fact that the South has needed its local funds in the past few years to keep pace with the rapid development that has gone on in agriculture and in manufacturing. It may be noted that the development of the country has used and is still using an immense proportion of the deposits in farm loans. The investment laws of the Southern States as a whole have by no means reached

the same degree of perfection that has been reached in the older states of the east.

The comparatively small holdings of bonds in the great reserve cities is accounted for by the fact that central reserve city banks, from whom the smaller institutions accept accommodation in stringent times, prefer to keep their funds otherwise employed, because, when called upon by their correspondents, they might be unable to convert bonds promptly into cash, by reason of the heavy simultaneous offerings thus brought about. The smaller bank can always obtain loans on its bonds at the reserve centers and at lower rates, on account of the high character of the collateral, than would be accorded on rediscount of commercial paper.

Table B—Classes of Bonds

Table B shows the classes of bonds in each state, divided into railroads, municipals and miscellaneous.

Probably the most interesting details of the replies from the banking point of view are to be found in this classified list of investments. Because Washington, Oregon and California run to railway bonds very strongly, the Pacific coast states lead the Union in proportion of investments placed in the railroad bonds. The Eastern and New England States are not far behind.

So far as a general rule may be laid down governing the subdivision of the investments, the rule appears to be that the states which for the past eight years have been the scene of the great boom in railroad building have not been the heavy investors in railroad bonds. The center of railroad bond buying appears to be located in Connecticut. The great ratio of the railroad bonds to total investments in Washington, Oregon and California seems to be due largely to the lack of municipal bonds.

The bankers of Connecticut are naturally very heavy buyers of railway bonds, because the legislature of that state has for years been educating them in the buying of railway bonds. The influence noted above of the savings bank law on the investment by other banks, is here again strongly exemplified. The savings bank laws of Connecticut, as compared with those of New York or Massachusetts, are extremely liberal. The bankers of the State of Connecticut are at all times in close touch with the Boston and New York bond markets. They have learned the science of bond-buying

TABLE B.
CLASSES OF BONDS HELD BY NATIONAL AND STATE BANKS AND TRUST COMPANIES IN THE UNITED STATES (GOVERNMENT BONDS ARE NOT INCLUDED).

STATES.	CLASS OF BONDS HELD.				Miscellaneous, Amount.	Per- cent- age.	
	Total Estimated Bond Investment.	Railroad. Amount.	Municipal. Amount.	Per- cent- age.			
Maine	\$18,256,000	45.65	1,774,000	44.01	417,000	10.34	
New Hampshire	4,031,000	61.96	\$3,201,000	17.53	\$3,744,000	20.51	
Vermont	7,099,000	158,000	6,187,000	87.15	754,000	10.62	
Massachusetts	25,586,000	16,060,000	5,160,000	20.20	3,757,000	14.69	
Boston	51,290,000	12,848,000	22,101,000	43.09	16,341,000	31.86	
Rhode Island	43,324,000	30,419,000	70,21	6,827,000	6,078,000	14.03	
Connecticut	23,601,000	21,024,000	89,08	8,38,000	3.55	1,739,000	7.37
New England States,.....	\$173,187,000	\$94,260,000	54.43	\$46,007,000	26.62	\$32,830,000	18.95
New York	\$140,031,000	\$88,497,000	62.93	\$28,928,000	20.57	\$23,206,000	16.50
New York City	335,504,000	200,345,000	61.50	81,348,000	24.25	47,811,000	14.25
New Jersey	111,805,000	44,837,000	40.12	44,72,000	39.98	22,240,000	19.90
Pennsylvania	203,161,000	135,021,000	66.46	18,194,000	8.96	49,946,000	24.58
Philadelphia	116,117,000	72,797,000	62.61	12,966,000	11.17	30,444,000	26.22
Delaware	6,411,000	2,762,000	43.09	3,649,000	56.91	None Reported.	
Maryland	41,505,000	33,400,000	80.44	1,639,000	3.94	6,490,000	15.62
District of Columbia	5,368,000	4,211,000	78.45	1,157,000	21.55	None Reported.	
Eastern States	\$900,592,000	\$587,860,200	61.20	\$192,583,000	20.05	\$180,149,000	18.75

Bonds as Additional Banking Reserve

109

Virginia	\$5,781,000	\$699,000	12.09	\$4,866,000	8.47	\$216,000	3.74
West Virginia	3,655,000	477,000	13.06	2,850,000	77.97	328,000	8.97
North Carolina	324,000				Classes not Reported.		
South Carolina	222,000				Classes not Reported.		
Georgia	911,000				Classes not Reported.		
Florida	656,000				Classes not Reported.		
Alabama	774,000	194,000	25.00	580,000	75.00	None Reported.	
Mississippi	2,284,000	162,000	7.08	2,079,000	91.03	43,000	1.89
Louisiana	3,232,000	347,000	10.73	2,195,000	67.92	690,000	21.35
Texas	1,732,000			1,678,000	96.89	54,000	3.11
Arkansas	1,892,000			376,000	19.89	1,516,000	80.11
Kentucky	8,870,000	4,501,000	50.74	4,037,000	45.51	332,000	3.75
Tennessee	12,021,000	222,000	1.85	11,688,000	97.23	111,000	.92
Southern States	\$12,354,000	\$6,602,000	16.41	\$30,349,000	75.47	\$1,290,000	8.12
Ohio	\$94,545,000	\$2,789,000	2.95	\$89,643,000	94.82	\$2,113,000	2.95
Indiana	38,143,000	7,579,000	19.87	29,317,000	76.86	1,247,000	3.27
Illinois	42,794,000	12,787,000	29.88	25,360,000	59.26	4,647,000	10.86
Chicago	103,427,000	45,622,000	44.11	25,888,000	25.93	31,917,000	30.86
Michigan	37,261,000	8,645,000	23.20	27,547,000	73.93	1,069,000	2.87
Wisconsin	39,254,000	9,421,000	24.00	26,288,000	66.97	3,545,000	9.03
Minnesota	19,459,000	13,695,000	70.38	5,480,000	28.16	284,000	1.46
Iowa	7,856,000	3,515,000	44.75	3,822,000	48.65	519,000	6.60
Missouri	41,666,000	26,606,000	63.81	11,154,000	26.75	3,936,000	9.44
St. Louis	35,277,000	16,492,000	46.75	11,352,000	32.18	7,433,000	21.07
Middle Western States ...	\$459,712,000	\$147,151,000	32.01	\$255,851,000	55.65	\$56,710,000	12.34

(301)

TABLE B—Continued.

STATES	Total Estimated Bond Investment.	CLASS OF BONDS HELD				
		Railroad.	Municipal.	Per-cent.	Miscellaneous.	Per-cent.
Amount.	Amount.	age.	Amount.	age.	Amount.	age.
North Dakota	\$269,000		\$174,000	83.33	\$35,000	16.67
South Dakota	598,000		Classes not Reported.			
Nebraska	2,748,000		2,748,000	100.00		
Kansas	6,585,000		5,656,000	85.89		
Montana	2,128,000		2,128,000	100.00		
Wyoming	133,000		Classes not Reported.			
Colorado	14,484,000		11,041,000	76.23	3,443,000	23.77
New Mexico	40,000		100.00			
Oklahoma	2,120,000		1,997,000	94.22	123,000	5.78
Indian Territory	166,000		Classes not Reported.			
Western States	\$20,211,000		\$23,744,000	83.86	\$3,626,000	12.81
Washington	\$3,113,000	\$2,802,000	90.00	\$311,000	10.00	
Oregon	8,323,000	8,088,000	97.18	158,000	1.90	\$77,000
California	90,664,000	65,015,000	71.71	15,984,000	17.63	9,665,000
Idaho	498,000			437,000	87.72	61,000
Utah	3,417,000			2,867,000	83.92	278,000
Nevada	No. Reports.					
Arizona	611,000	57,000	9.35	524,000	85.72	30,000
Pacific States	\$106,626,000	\$76,234,000	71.50	\$20,281,000	19.02	\$10,111,000
Total	\$1,771,682,000	\$913,051,000	51.62	\$568,905,000	32.17	\$286,716,000
						16.21

at its fountain head. They like railroad bonds because they find these yield higher rates than municipals, and at the same time they are possibly as well equipped as any group of bankers in the Union to select, for their investments, railroad bonds that will net them market profits. The State of Connecticut has for years been the banner territory for the traveling bond salesman.

At first glance, the failure of the bankers of the State of Vermont to qualify with the bankers of the other New England States as buyers of railway bonds appears strange. Less than 2.25 per cent of the investment in that state is in railway bonds. The phenomenon is explained in large part by the fact that the savings bank and trust company laws of that state prohibit the investment of funds in bonds of railroads.

Vermont, therefore, naturally becomes one of the states which run to municipals. Considering the volume of holdings, as well as the ratio to total investments, the State of Ohio and the City of Boston appear to be the real leaders in municipal investments. The "old-line" bankers in both supplied a nucleus about which was built a large trade in standard municipal bonds. Boston, in particular, has many investment houses of wide clientele which do the bulk of their business in municipal bonds.

The State of Ohio, with over \$89,000,000 in municipal bonds, owes its distinction as the leader of the list largely to the tax exemption of this class of bonds, coupled with the fact that the state is prolific in municipal issues of sterling character. Cincinnati is a busy center for municipal bond trading. Most of the municipalities of the state have reached that stage in development which calls for heavy expenditures on public works, and the banks find it profitable to invest in local securities of this kind.

The same tendency is noted in the Far West, though not to so great a degree on the Pacific coast. The banks buy municipal bonds as a bid for city business, and to assist in local development which accrues eventually to their own benefit. Localizing of investment is the popular excuse from the Western bankers for failure to purchase any great amount of railways bonds. Kansas, Oklahoma, Idaho, Utah and other states whose local resources are opening out incline to home investment rather than to the purchase of securities good in themselves, but without local influence.

This localization of investment is the basis of practically all
(303)

the buying of miscellaneous bonds by the banks. Boston and Chicago are notable in this respect, as are also Arkansas and Colorado. The latter state seems peculiarly averse to railway bonds. Nearly all its investments, not very heavy in the aggregate, are in local municipals and in miscellaneous bonds on local, particularly irrigation, enterprises. The investment of bank funds in miscellaneous bonds is not widespread, the total for the Union being 16.21 per cent of total bond holdings. This figure is probably lower than it was in 1902. The investment of bank funds in bonds of this kind was recognized as the most important single factor in the numerous bank troubles that arose during and after the long period of liquidation in all the markets of the United States.

Opinions as to Advisability of a Bond Reserve

The wisdom of keeping a second reserve in high-class bonds in addition to the ordinary cash reserve, has evidently received much thought among bankers. Their tabulated replies are given below. The larger percentages of approval, it will be seen, are in what we have termed the more fully developed sections.

TABLE C.

FAVORABLE TO A BOND RESERVE FOR BANKS.

Percentages from replies by banks expressing opinions.

	Yes.	No.
New England States	93	7
Eastern States	96	4
Southern States	81	19
Middle Western States	88	12
Western States	81	19
Pacific States	90	10
Average for United States.....	89	11

It is evident, then, that the bankers of the United States have gradually, in the last fifteen years, taken up the matter of carrying a bond reserve, and after careful consideration, a large majority have adopted it in the developed portions of the country, and have approved of it in those parts which have not yet reached the bond

zone. The practice is steadily extending and bonds are being absorbed in very large amounts annually.

On the subject of what bonds should be used for the secondary or safety reserve, the bankers have expressed themselves freely.

TABLE D.

CLASSES OF BONDS RECOMMENDED FOR BOND RESERVE.

Percentages from number of banks expressing opinion.

	High-class Listed R. R.	Municipal.	Public Utility and Industrial. ²	U. S. Gov't.
New England States	54	27	9	10
Eastern States	65	22	7	6
Southern States	25	50	4	21
Middle Western States	27	55	4	14
Western States	24	45	11	20
Pacific States	29	35	15	21
—	—	—	—	—
Average for United States	38	42	6	14

The opinion in favor of municipals for this purpose (highest in percentages in the South, Middle and Western States) is influenced by the same local conditions to which we have called attention in Table B, showing class of bonds held.

The New England and the Eastern States easily lead in the percentage of banks which pin their faith to the high-class listed railway bonds. The fact is traceable in part to accessibility to bond markets, which underlies the long-standing penchant of investors in those states for railway bonds. The Eastern investor demands a better return than he can get from government bonds; hence the low percentage of bankers in these states who recommend the government issues. The predilection of the Western bankers for local municipals is an outcome of the co-operative spirit that has made the West what it is to-day. The same principle governs the inclination of the Pacific coast bankers toward public utility and local industrial bonds.

Our correspondents were asked to express an opinion as to what proportion of deposits should be kept as a reserve in bonds. The results are herewith given in

²The proportion of industrial in this column, as shown by the replies, is in very small proportion to public utilities.

TABLE E.

PERCENTAGE OF DEPOSITS RECOMMENDED FOR BOND RESERVE.

Average from replies received.

New England States recommend	26
Eastern States recommend	29
Southern States recommend	18
Middle Western States recommend	19
Western States recommend	18
Pacific States recommend	22
<hr/>	
Average for United States	22

The conservative and more highly developed sections again lead in proportion recommended, the Pacific States follow closely, and, as before, the South, Middle West and Western States stand lower. It will be noted that the average percentage of all replies is 22.

Dealing in Bonds

The taste for bonds as an investment for idle funds has not been confined to banks. Investors themselves, the real owners of the idle funds in banks, have found this to be a better disposition for a part of their balances than to leave them on deposit in banks at lower rates than bonds yield. Consequently there has grown up a demand for bonds in the communities where deposits have been increasing most. Some thrifty bankers have taken advantage of this demand, and seeing deposits being drawn out by the investor, for bond purchases, have established bond departments for the purpose of supplying their customers with such issues as they might desire, and buying from them, when, for any reason, they might wish to sell. In nearly every instance reported this has proven a satisfactory innovation. The bankers have been acute enough not to cultivate this taste in advance and so induce depositors to draw down their accounts. The process of evolution is shown by many expressions of opinion from communities where depositors are not yet familiar with bonds, indicating the attitude of the local bankers, who assert that the sale of bonds to customers would at once reduce deposits. It is only when the depositor has begun to buy bonds and

to draw funds for this purpose that the bankers, yielding to the inevitable, have turned the practice into a source of profit.

In the expressions of approval of the bond business many bankers are careful to state that they do not mean underwriting and floating a special single issue among customers, with a chance of unfavorable outcome and a consequent bad reputation for the bank. A number distinctly state that they confine themselves to the classes of bonds for which customers are looking, dealing only in such. One banker makes it a practice to buy back any issue he has offered, even should it decline in value.

That the practice of dealing in bonds is growing steadily, and especially in what we have termed the more highly developed sections, is shown by the following table, which gives percentages of opinions as to the expediency of banks dealing in bonds, affirmative and negative, also percentages of banks actually engaged in the bond business:

TABLE F.
DEALING IN BONDS.
Percentages from replies by banks reporting on this subject.

	Approve of Bond Business.		Engaged in Bond Business.	
	Yes.	No.	Yes.	No.
New England States	43	57	19	81
Eastern States	29	71	18	82
Southern States	39	61	11	89
Middle Western States	37	63	18	82
Western States	34	66	11	89
Pacific States	64	36	15	85
—	—	—	—	—
Average for United States	37	63	16	84

General Conclusions

The opinions and information furnished by our correspondents (in addition to statistics), revealing conditions pertaining to the bond question the country over have proven a most interesting result of this investigation. Some general conclusions may be drawn from the data thus obtained, supplemented by a previous knowledge of conditions.

Commercial Paper Compared With Bonds

It may be concluded with some confidence that commercial paper as an investment for bankers, distant from the financial centers, is undesirable. This does not apply to many bankers in the East, who are expert buyers of paper and rarely have a loss. These find that maturities, purchased with reference to fixed dates of payment, with no expectation of renewal, answer most advantageously the purpose of a reserve. It is in fact a reserve which, so to speak, converts *itself* into cash. For the banker who is not an expert, however, such purchase is most hazardous. To test the quality of outside commercial paper requires long experience, unremitting investigation, wide facilities for detecting signs of deterioration and never-ceasing, alert attention to the faintest sign of danger. To one who is not thus equipped the proportion of loss is large, and the testimony of our correspondents is mainly to the effect, that while paper yields a larger immediate return, the results over a period of years are largely in favor of bonds. The proportion of loss on paper (while there is practically none on well-selected bonds) is so considerable that the actual return on bonds is greater. The yield of bonds is calculated as about 1 per cent less than the nominal yield of commercial paper, but when the losses have been equated the difference is practically much more than wiped out.

The conditions on which the value of commercial paper (other than purely local paper) rests are very miscellaneous and constantly shifting. Bonds, on the other hand, show a very small percentage of defaults. Their maturities may be long deferred, but they are definite and certain. None of the bankers writing us has had occasion to refer to any lack of safety in bonds properly selected.

A very considerable number of our correspondents find that by the careful purchase of bonds when they are cheap a substantial appreciation in their value may be realized. Of course, prices of bonds are subject to numerous contingent conditions and a certain amount of experience is necessary to determine values with a fair degree of accuracy. In the earlier stages of bond investment the banker, if inexperienced, must depend in a measure upon some thoroughly reliable bond house through which to make his purchases and sales, and he may do this very safely. It is not necessary to become a speculative trader in order to realize a conserva-

tive profit on bond investment, which, added to the fixed rate of interest, produces a handsome yield.

Bonds as Reserve and for Investment

Bonds lend themselves to two distinct uses for bankers; as a reserve and as an investment. Nearly all experienced bankers recognize the value of bonds for temporary investment of idle funds. Many of our correspondents find them desirable for permanent employment of a considerable part of the bank's resources for revenue purposes. One or two banks report that they invest practically all their loanable funds in bonds.

In creating an added reserve of some sort, the consideration of the soundness of the security presents itself first; next convertibility—the question of income being subordinate to both of these. Where investment alone is considered, convertibility does not enter as a factor to so large an extent. Soundness and rate of income are then the two requisites, but for reserve purposes, as has been said, convertibility is the primal consideration, next to safety.

The high-grade municipal bond is generally conceded the first place for safety, because it rests upon the established credit of communities. The bonds of long-established railroads come next in favor because the conservatively operated large railroad has developed a credit not easily dissipated by a short period of indifferent management, and because transportation, by reason of its universal necessity, is a comparatively stable industry, and responds less sharply to changes in economic conditions than do enterprises less public in character. Good traction bonds and the best class of industrials are gradually growing in favor as investments, and some have already established themselves on a plane with standard railroad issues. Great care should, however, be exercised in the selection of such investments, and only well secured bonds, of thoroughly established enterprises, should be considered.

Convertibility for reserve purposes comprises not only the power to convert into cash, but also the ability to realize cash equivalent by loans upon which bonds are collateral. Loans of this character may be obtained at the lowest rates prevailing. Still another channel of convertibility has been opened in the last year or two by the decision of the Secretary of the Treasury to receive high-grade

bonds as security for government deposits in especially stringent crises.

In selecting bonds for the purpose of reserve, the broader the market the more perfectly is the purpose served. Hence, those listed on the principal exchanges and those with an international market, are preferable. The broader the market the greater is the facility for the purchase and sale of securities at close quotations.

As to Total Holdings

Reverting once more to the first table of the series (Table A), the total figures for all the states show that there are held by banks and trust companies in the United States (excluding private banks and mutual savings banks) the enormous sum of \$1,771,000,000 in bonds, exclusive of governments. The sum is equal to about 17 per cent of the total deposits and is greater than the total capital of all the banks, being 124 per cent of the capital, or equal to the total amount of capital and a considerable portion of the surplus.

As nearly as can be ascertained, the main part of this vast sum has been absorbed by bonds since the panic year 1893.

Economic Effect of Large Investment in Bonds by Banks

The inflation of commercial credit beyond the ability of bank cash assets to support it, has brought about commercial collapse at nearly regularly recurring periods during the entire era of industrial progress in the United States. In times of plethora of money, banking judgment is easily warped by the disturbing reflection that funds are idle when they should be earning dividends. This attitude leads to the acceptance of doubtful investments which would be refused quickly if legitimate demand were active. In each period to which reference has been made the enthusiasm for expansion, excited by plentiful credit and preceded by real prosperity and an accumulation of wealth, has carried the banking operations beyond legitimate functions, into promotions of unwarranted enterprises, resulting eventually in widespread disaster.

The availability of high-grade bonds furnishes a field for the safe employment of surplus moneys during prosperous periods, thereby minimizing the temptation to participate in speculative or questionable schemes.

The economic effect of the reserve investment in bonds by banks will undoubtedly be to strengthen the foundations of credit in the United States. Not only are the funds in this great reserve rescued from the danger of unwise risks in the periods already referred to, of enthusiastic promotion following truly prosperous times, but, owing to their disposition in high-class convertible securities instead of in possibly uncollectible paper, an additional and always available means is provided for weathering financial storms.

This investment, then, means a curtailment of credit inflation, either averting for a longer period the recurrence of industrial panic or providing means of meeting and ameliorating that condition when it does actually develop.

Whether bond investment has been undertaken by the bankers of the United States to counteract these ever-recurring tendencies toward panic, or whether considerations of safety or of profit have determined the policy of each individual, the fact remains that the movement has progressed steadily with beneficial results. These benefits will continue and will increase, providing the bonds acquired are of the high character which is now the standard among able and conservative bank managers.

RAILROAD BONDS AS AN INVESTMENT SECURITY

By FLOYD W. MUNDY
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Railroad bonds have for many years enjoyed the favor of investors, for reasons which are well established. For over half a century of the greatest period of development which any nation has ever witnessed, the railroads of the United States have proved to be not only the pioneers in the opening and developing of new territory, but also the main arteries for the constantly increasing commerce of the nation. In railroad securities, notably railroad bonds, more than in any other form of corporate security, are to be found the elements which make for stability in value. The railroads have proved themselves necessary to the development of the nation and are directly related to public necessity and convenience. The railroad companies, as the employers of so large a number of the laborers of the nation, are protected in that the prosperity of all is co-related. Further security is found in the fact that so great a proportion of the wealth of the nation is invested in the securities of the railroads. Perhaps the greatest safeguard protecting railroad securities is found in the cost of the railroads themselves and the impossibility of replacing them. It is commonly known that the terminals alone in the large commercial centers of the country are not capable of being duplicated, irrespective of the cost involved. Furthermore it appears highly improbable that any new invention in the aid of transportation will be discovered which will not readily adapt itself to the steam railroad of to-day.

These safeguards, it is believed, will prove themselves an ample protection for investors in railroad securities. Emphasis is given to them at the beginning of this discussion in view of the wide-spread apprehension which has seized upon investors by reason of the agitation in favor of the regulation of railroads by commissions, both state and national, in the interest of the people. Success or failure for the railroads means nothing more or less than prosperity or the reverse for all business enterprises in the United States; oppressive legislation directed against the railroads will certainly affect adversely every business in the country. Under such conditions public opinion will compel fair and equal justice

in the solution of this question of public regulation of railroads. It is proposed herein to outline, in an elementary fashion, some of the considerations which the investor must weigh in determining the value of a railroad bond, and at the same time to point out some of the fallacies of the arguments which commonly influence the rank and file of investors in railroad bonds. Preliminary to the discussion on the desirability of railroad bonds as investments, it must be stated that railroad bonds, like any other form of investment security, are subject to the influence of economic laws. Many rules for investment, which experience has dictated, are often seemingly rendered nugatory owing to a change in monetary and economic conditions.

The four most essential considerations which make a bond attractive in the eyes of an investor are the following:

- (1) Security of principal.
- (2) Security of income.
- (3) Marketability.
- (4) Fair rate of interest and reasonable chance of appreciation in value.

By the very nature of the business of railroading, the first three qualities are found to a greater extent in well-selected railroad bonds than in perhaps any other form of corporate obligation; the last-mentioned quality, that of rate of income and chance of appreciation in value, the railroad bond, purchased under favorable conditions, possesses in a marked degree. Thus railroad bonds are by nature a favored investment. National banks are permitted under the laws of the nation to invest funds in railroad securities, a privilege which is expressly denied so far as real estate mortgages are concerned. National banks have repeatedly been allowed to offer railroad bonds as security for public deposits.

During the past decade, it is safe to say, that, all things considered, railroad bonds have been especially sought by investors, as against real estate loans, owing to the generally accepted belief that the interest return in the United States was steadily declining. Until recent years the interest rate on high-class securities fell perceptibly. This tendency to a lower rate was ascribed to various causes, notably to the fact that a vast amount of capital was accumulating year by year in the treasuries of insurance companies, trust companies and banking institutions and in the hands of

custodians of estates, and to the belief that the investment of these funds must create such a demand for first-class bonds as to raise prices materially. Railroad bonds, which for the most part have a long time to run, enjoyed favor because the investor did not care to have his funds returned to him for re-investment at an early date, when in all probability the interest return would be lower. Under the influence of prosperity the investor witnessed the constant increase in value of all property, and naturally favored that form of investment which would appreciate in value, in sympathy with the increase in value of the property on which such investment was based. Real estate mortgages did not hold out such attraction. Owing to their short duration, they did not appreciate, while the appreciation in the price of bonds was very great. Economic conditions have changed during recent years, so that those who to-day hold long-term investment bonds purchased on a low interest basis, find the selling value of their bonds reduced; had they confined their purchases to real estate mortgages, their funds would be returning to them intact for re-investment at the profitable rates which have prevailed since 1905.

Owing to the severe losses during recent years imposed on that class of investors who chose railroad bonds as against real estate mortgages, it is peculiarly fitting at this time, when railroad bonds are selling at much lower prices than have prevailed under like conditions for many years, to point out briefly some of the important qualities which characterize these two forms of investments. It is believed that such comparison will show that well selected railroad bonds, purchased under conditions now existing, will prove decidedly the more profitable investment.

RAILROAD BONDS.

As to the security behind the investment.

The security behind well-selected railroad bonds, especially underlying bonds, is more capable of appraisal fully as great as in the case of real estate mortgages, and in many cases much greater.

As to the margin of safety in earnings.

A large measure of protection is found. In the case of well-selected underlying bonds the protection is much greater than in real estate mortgages.

REAL ESTATE MORTGAGES.

The security behind well-selected real estate mortgages is more capable of appraisal, yet proof is not wanting to show that the equity here is not greater than in the case of railroad bonds.

A large measure of protection is found generally where the mortgaged property is improved and used for business purposes. Protection is uncertain in the case of dwellings and unimproved property.

RAILROAD BONDS.

As to the rate of income. The interest rate is usually lower on railroad bonds.

REAL ESTATE MORTGAGES.

The interest rate is usually higher on real estate mortgages by from one-half to one per cent.

As to marketability.

Railroad bonds are readily marketable and at minimum not readily marketable. Expense. Railroad bonds are more attending sale is common for the most part listed and relatively heavy. Real estate dealt in on prominent stock market mortgages are not listed on exchanges.

As to availability for collateral for loans.

Railroad bonds enjoy a high degree of favor among bankers as collateral for loans because of their ready salability. Most bonds pass from hand to hand as readily as bank notes. A banker can easily inform himself as to the probable value of any railroad bond by reference to any one of the numerous railroad and investment manuals.

Real estate mortgages are not promptly accepted by bankers as collateral because they are not readily marketable. The expense to an investor seeking a loan is large, on account of commissions, cost of examination of title, etc.

As to appreciation with advance in value of security.

Railroad bonds, which usually have a long time to run, when purchased at a fair interest return basis, will appreciate in sympathy with the increase in value of the security behind them.

Real estate mortgages, owing to their short maturity, do not rise in market value appreciably, even when the security of the loan is greatly enhanced.

As to depreciation with decline in value of security.

For the very reasons which cause bonds, under normal conditions, to advance when the security behind them increases, railroad bonds usually decline when the security is impaired.

Unless the impairment in the security is great, real estate mortgages do not have a tendency to decline under normal conditions. In this particular real estate mortgages are preferable to bonds.

As to the status in the event of serious impairment of security, and in case of default.

When bondholders find it necessary to take legal steps to protect their investment against threatened default, or in the event of actual default, the expense pro-rated among a large number of bondholders is incon siderable.

When there develops serious depreciation in the value of the security behind a real estate mortgage, the value of the mortgage is greatly lessened, and the lack of ready marketability often entails a severe loss on the investor. In case of default, the holder of the mortgage is often compelled to take over the property at considerable cost and inconvenience.

The advantages in favor of railroad bonds seemingly outweigh those in favor of real estate mortgages. In a time of high interest rates when railroad bonds depreciate and can be purchased on a remunerative income basis, they are much more desirable, yet experience has shown that when railroad bonds sell on a low interest basis, the advantage often lies with real estate mortgages, for, in the case of the latter, the principal sum is not liable to shrinkage under changed monetary conditions except where the value of the security is seriously impaired. Attention has been directed to the marked decline in the prices of bonds during the past few years owing to the changed monetary conditions. Naturally a multitude of investors have, from time to time, been attracted to railroad bonds for the reason alone that they have witnessed a steady increase in price of such bonds, whereas no such appreciation was shown in real estate mortgages. Many investors, who have witnessed the protracted decline in railroad bonds during the past few years, doubtless find themselves ready to accept the satisfactory record of real estate mortgages, during this period, as sufficient proof of the advantages they possess over railroad bonds.

The above comparison of the relative merits of these two classes of investment tends to show that, for the very reason that railroad bonds have declined to a level where they yield a liberal interest return, the investor would do well to study the characteristics of these two classes of investment before passing judgment. Arguments advanced a few years ago, contemporaneous with the conditions prevailing at that time, appeared logically to favor railroad bonds over real estate mortgages as investments; so under present conditions the recent steady decline in the price of railroad bonds argues logically in favor of real estate mortgages. As a matter of fact the conditions recited above indicate that railroad bonds at prevailing prices will prove to be the more profitable investment.

The scope of this article will not allow of a discussion as to the relative merits of railroad bonds and bonds of industrial companies and public utility companies. Such a comparison would favor railroad bonds in respect of many of the considerations which already have been discussed in the comparison of railroad bonds and real estate mortgages. Industrial companies are more exposed to competition than railroad companies, and in many cases their success

is largely dependent upon special benefits which they enjoy, by reason of patent rights, protective tariff, legislation, contracts, etc. So far as public utility companies are concerned, these are franchise corporations pure and simple, and in the majority of instances their capitalization is based largely upon their franchises. Franchises are widely different, and in many cases the benefits conferred by them are circumscribed by so many limitations as to render successful operation under them extremely speculative. The communities granting franchises retain their taxing power. Public utility corporations are always subject to political attacks, and their success is dependent in a great measure upon the state of local public opinion. Railroads own their rights of way and terminals in fee and the many advantages which they enjoy are fundamentally more secure, as already explained.

Instances are not lacking to show that, under certain conditions, inferior grade bonds resist decline where first-class bonds, often the prior obligations of the same company, show decided and continued weakness. Owing to the large increase in the production of gold, the purchasing power of gold has declined, prices generally have risen as a result, stimulus has been given to trade, demands for capital for commercial enterprises have consequently increased very largely and finally interest rates have risen. The investor having \$200,000 invested in bonds yielding four per cent per annum enjoys a fixed yearly income of \$8,000. With the cost of living increased he becomes impatient to increase his income. Impelled by this motive and by the confidence begotten of general prosperity, he often disposes of his bonds and seeks an investment in some more "attractive" security. Thus the anomalous condition arises where often times "gilt edge" bonds decline more than speculative bonds.

While, therefore, economic and financial conditions have varying influences upon different classes of railroad bonds, yet, for the reasons cited above, it is likely that railroad bonds will continue to be preferred by investors generally over most other forms of corporate security.

The name bond does not carry with it any guarantee of quality. So far as the term is accepted as a synonym of protection or safety, it is, in this day, a misnomer. In recent years so many new kinds of railroad bonds have been introduced into our market, that the investor must use great care lest, in pur-

chasing a bond, he finds himself possessed of a security far inferior in grade to many railroad stocks in which he would not care to invest. There are outstanding to-day various kinds of collateral bonds; bonds the joint obligation of two or more railroads; bonds the joint obligation of railroad and coal companies; participating bonds; convertible bonds; debenture bonds with no security; debenture bonds collaterally secured; debenture bonds to be secured by mortgage in the event of a new mortgage being placed upon the property in the future. The names of bonds vary; as prior lien, general lien, divisional, consolidated, unified, first consolidated, first mortgage, second mortgage, third mortgage, extension mortgage, etc. Needless to say a third mortgage bond may be infinitely more secure than a first mortgage or prior lien mortgage bond.

The value of a bond therefore must rest to-day, more than ever before, upon the earning capacity and the character of the management of the issuing company. The bond may be a first mortgage on property, the value of which is much greater than the face value of the bonds issued against it, yet this bond may suffer considerably in the market, owing to the fact that the issuing company has outstanding other bonds issued against insufficient security, the result being that, if this company's credit becomes impaired, all the bonds of the company, good and bad alike, will suffer depreciation. The value of a bond is based upon the commercial value of the security behind it; the commercial value depends largely upon revenue-producing capacity.

The investor should acquaint himself with the character of the security back of the bond and the legality of the mortgage securing his bond. As a personal examination of the physical property would not be possible or advantageous, the value of the security back of the mortgage must of necessity be judged by its income-producing capacity. The strategic importance of the property securing a bond of course must not be overlooked. So far as the legality of the mortgage is concerned, the average investor must be content to rely upon the judgment of the lawyers who have drawn up the mortgage, being reminded that before such mortgages are recorded they are examined not only by the counsel for the company, but also by the counsel of the trust company in whose favor the mortgage is drawn. An inves-

tor, however, should be careful to read the mortgage, copies of which are usually easily obtained in printed form from the railroad company, for thus he will learn the provisions which may exist for the retirement of the bond earlier than maturity, for participation by the bondholder in profits of the company, for the optional conversion of the bond into stock of the company, for provisional voting power accorded to the bondholders, etc. It is important, also, to know when underlying bonds mature, and whether or not such underlying bonds may be extended at maturity.

It is important to the holder of collateral trust mortgages to ascertain whether or not the capital stock of the companies, whose bonds may be pledged thereunder, is deposited with the trustee. If it is so deposited, the holders of the collateral bonds, in case of foreclosure, come into possession of the immediate control of the physical property. Those collateral trust mortgages which best protect the interests of the bondholder provide, where the parent company has made use of its voting power to effect a lease of the subsidiary company's properties, that, upon default in the payment of interest on the collateral trust bonds, such lease shall immediately terminate. Provisions are frequently found in collateral trust mortgages restricting the powers which would naturally belong to the parent company as owner of the capital stock of a subsidiary company; such provisions relate to the power to consolidate, to sell property, to issue bonds, etc. Some collateral trust mortgages provide for the sale of the collateral without the necessity of foreclosure. In the mortgage securing the Chicago, Rock Island & Pacific Railroad collateral four per cent bonds of 2002, secured by deposit of the capital stock of the Chicago, Rock Island & Pacific Railway, this clause is found, coupled with the provision that, when the stock is sold, bondholders may bid it in, using their bonds at their face value in payment. Thus, although the bonds themselves should sell at fifty cents on the dollar, and other bidders should make a cash offer of seventy-five cents on the dollar for the collateral, the bondholders would have a decided advantage in the bidding, for they could bid par for the collateral and make payment in their bonds at their face value. Sufficient illustrations have been given to show that the casual investor in railroad bonds will find great advantage in reading the mortgages.

Those bonds which are by statute declared a legal investment
(319)

for savings bank and trustees, are considered rightly the safest bonds. The laws of New York, Massachusetts and several other states are very strict in limiting such investment. Bonds that are legal in these states are considered "gilt edged." As such bonds bear the stamp of approval of the various states, and as trustees may invest funds in them without liability for loss arising from depreciation, there is a better demand for such bonds, and as a result their market prices are less subject to fluctuation. By reason of the existence of this demand these bonds naturally yield a lower return than other bonds. However, it can safely be stated that there are many bonds which for one reason or another have not become legal, and which may never become legal, which are quite as safe as the so-called savings bank bonds. The investor shows himself astute who studies the laws of the various states, for often he is enabled to secure at an advantageous price, bonds which he foresees will probably soon become legal, owing to compliance with the provisions of the law, as, for example, that provision which provides for the payment by the company in dividends to its stockholders during each of five years an amount equal to four per cent upon all its outstanding capital stock.

The bonds of the larger railroads, especially of important trunk lines, are preferred by many shrewd investors to those of smaller railroads, notwithstanding that the earning power of the one may be relatively less than that of the other. The large railroad derives its traffic from a wide territory, the volume of traffic is not dependent so largely upon local or territorial commercial and agricultural conditions. Local calamities, arising from plague, floods, fire or crop failure, often cause severe inroads to be made in the earnings of small railroads, whereas the influence of these on the earnings of a large system is not threatening. Another reason for the prejudice in favor of the bonds of large railroads is a simple one, namely, that damages arising from accidents, washouts, etc., bear heavily upon small railroads. An accident, such as that which occurred in the tunnel of the New York Central & Hudson River Railroad in New York City in 1902, or a washout, such as that with which the Erie Railroad was visited in 1903, under certain conditions, if visited upon a small railroad, would go far toward impairing its credit.

On the other hand attention should be directed to the fact

(320)

that small railroads, if profitable, are often absorbed by large systems, and their bonds become underlying bonds to their great advantage marketwise. The investor, however, who owns bonds of a small issue, is oftentimes at a disadvantage, due to the relatively greater proportion of expense which he must share in the event of the foreclosure of his mortgage.

The bonds of a mortgage which is closed, that is, of a mortgage under the terms of which bonds in addition to those outstanding may not be issued, prove usually more desirable for investment than the bonds of a mortgage which allows of the issuance of additional bonds. The price level of an issue of bonds may range for years between say 95 and 100; the railroad company, finding itself in need of funds at a time when investment or financial conditions are unsatisfactory, may sell additional bonds of this issue at 90. The bankers who purchased are willing to sell at 92, thus establishing a new level for the bonds. Later the company may sell at 85, and the price is accordingly lowered still further. If the bond is indeed desirable its price will eventually rise to its proper level, yet the effect of the issuance of additional bonds, under the circumstances here recited, would be none the less disconcerting to the investor who had purchased his bonds at the higher price.

Underlying bonds can frequently be purchased on as remunerative a basis as the bonds of the refunding or consolidated mortgage of the same company. In such cases the underlying bonds will prove the more desirable investment, from the investor's standpoint, for the reason that they are, so to speak, "more seasoned," that is, are so securely lodged, among a comparatively small number of investors, that they do not come on the market in time of stock panics, etc.

The creation of a refunding or consolidated mortgage and the issuance of bonds thereunder, usually enhance the security of the existing bonds, especially where the proceeds derived from the sale of such bonds are invested in improvements, enlargement of terminal facilities, and the purchase of equipment, for additional expenditures for these purposes tend to fortify the position of the existing bonds. For example, the refunding and extension mortgage created in 1905 by the Colorado & Southern Railway provides for the issuance of many millions par value of bonds for the express purposes of improving, equipping and double tracking of existing

lines. The issuance of these bonds will result in enhancing the value of the security behind the older mortgage issues. The investor should study the financial history of railroad companies, to ascertain how much capital stock may have been sold to stockholders to raise funds for improvements, etc. In recent years railroad companies, whose stock has sold at a sufficiently high premium to allow of an advantageous sale of capital stock to stockholders, have chosen this method for raising funds for the development of their properties. The stock has usually been sold at par or higher. Hundreds of millions of dollars have been secured in this way. The Baltimore & Ohio Railroad has raised over \$100,000,000 since 1900 by the sale to stockholders of common stock or of convertible bonds which have since been exchanged for common stock. Among other companies which have secured large sums of money through the sale of capital stock, are to be mentioned the Chicago & Northwestern Railway, the Chicago, Milwaukee & St. Paul Railway, the Great Northern Railway, the Illinois Central Railroad, the New York Central & Hudson River Railroad, the Northern Pacific Railway, the Pennsylvania Railroad, and the Southern Pacific Company. Many railroads, as, for example, the Atchison, Topeka & Santa Fé Railway, the Delaware & Hudson Company, the Erie Railroad, and the Union Pacific Railroad, have raised large sums of money by the sale of bonds or debentures convertible into common stock. There is no need of further comment in emphasis of the importance of this mode of financing to the holders of the underlying bonds of these companies. The bonds of all these companies, and more besides, have been placed in a well-nigh impregnable position so far as their security is concerned.

There are many railroads in the United States to-day whose command of business has been restricted and whose profits greatly reduced, owing to the lack of adequate facilities for handling their traffic. Economical operation, in the present epoch of railroading in the United States, usually results from the expenditure of large sums for improvements, etc. So far from being a cause of anxiety to the investor in the existing bonds of any railroad, as a rule the creation of a new mortgage or the sale of stock by such railroad should bring re-assurance to him. While commenting upon the manner in which the bond issues of certain railroads have been strengthened by the expenditures of large sums derived from

the sale of capital stock, etc., it is proper to add that a tremendous equity has been established for the bond issues of railroads generally, owing to the expenditure for improvements during recent years of large appropriations from surplus earnings. It is safe to say that, notwithstanding the large increase in the amount of dividends paid to stockholders during the last ten years, the aggregate of the dividends paid during this period has not consumed forty per cent of the total surplus earnings available for dividends. The excess of surplus earnings over the dividend payments has, for the most part, been turned back into the property in one way or another.

It is important, from an investor's standpoint, that the railroad company should own in fee the approaches and terminals which it uses in and about large cities. The position of a company which gains access to large commercial centers over tracks owned by other companies is often jeopardized. In such a case it is always prudent to make an investigation as to the terms and limitations of such trackage contracts as may exist.

It has been stated above that the value of a railroad bond rests largely upon the earning capacity of the company, whose obligation it is. So far as the earning capacity is concerned, the investor can readily gain sufficient knowledge for his guidance from a study of the annual reports of the railroads. He must not content himself, however, with the study of the earnings of but a few railroads, for he must remember that value is a relative quality, and that a bond can be said to be cheap or dear only when comparison with other bonds demonstrates its price to be relatively low or relatively high. As a rule comparisons of the earning power of railroads can be made easily and intelligently owing to the fact that all the railroads issue annual reports, which furnish in substantially uniform method the important details of their financial operations.

It is not the purpose here to enter into an exhaustive discussion of the study of railroad reports; there are many manuals and reference books devoted to this subject, which the investor should consult. It will suffice here to dwell upon some of the more important considerations, brought out by the study of railroad reports, which, because least understood, should be of particular interest to the investor.

The income account of a railroad is usually given as follows:

Gross Earnings	\$10,000,000
Operating Expenses	6,000,000
Net Earnings	\$4,000,000
Miscellaneous income	200,000
Gross Income	<u><u>\$4,200,000</u></u>
Fixed Charges:	
Interest	\$1,500,000
Rentals	100,000
Taxes	375,000
Sinking Fund, Exchange, etc.	25,000
Total Charges	<u><u>\$2,000,000</u></u>
Surplus	\$2,200,000
Dividends	1,000,000
Balance	<u><u>\$1,200,000</u></u>

It is obvious, as operating expenses absorb so large a proportion of the earnings from all sources, that the investor should inquire into the nature of these expenses. The operating expenditures are classified according to the rules prescribed by the Interstate Commerce Commission. These classifications have for years been embodied under four prominent heads, as follows:

- (1) Maintenance of Way and Structures.
- (2) Maintenance of Equipment.
- (3) Conducting Transportation.
- (4) General Expenses.

Beginning July 1, 1907, the railroads of the United States have changed their methods of keeping and rendering accounts, to conform with a new system adopted by the Interstate Commerce Commission. The system of accounts previously in use allowed of the incorporation in maintenance of way and structures and maintenance of equipment, of expenditures of an extraordinary nature for improvements, additions, etc. The new system requires that all these extraordinary expenses, over and above the actual expenses for maintenance, shall be included in a separate item

and deducted from net earnings. Many railroad companies have heretofore been enabled to conceal their true earning capacity by arbitrarily charging to maintenance large sums for improvements; on the other hand, other companies have caused their net earnings to be unduly swollen through inadequate charges to maintenance. While the reports to be issued under the new system of accounting doubtless will show a wide variance in the opinions of different managements, as to what constitutes adequate maintenance, the statements hereafter issued by the railroads will undoubtedly be more intelligible to the average investor. The only way in which the investor may satisfy himself, that a railroad in which he is interested is charging its operating expenses sufficiently for the keeping up of its property is by a comparison of the accounts of that railroad with the accounts of other railroads operating under like conditions in the same territory. The mere fact that companies have adopted a more intelligible method of rendering their accounts does not relieve the investor of the necessity of examining carefully into this question of maintenance.

The new system will not change materially the character of the expenses which heretofore have been included in conducting transportation and general expenses. Conducting transportation expenses will hereafter be divided into two classifications, namely, conducting transportation—traffic, and conducting transportation—operation. To the consideration of the expenses which fall under these headings the investor should give considerable attention, for the significance of their relation to the company's ability to meet its interest payments is not generally understood. These expenses relate and are incident to the immediate conduct of the railroad's business, and, like those commonly called "fixed charges"—interest, taxes and rentals—their payment cannot long be delayed. Maintenance expenses are to a considerable extent capable of curtailment, under necessity or in the discretion of the management, but these other expenses, which include wages, cost of fuel, salaries, legal expenses, etc., must be met if the railroad continues to do business. So the conducting transportation and general expenses are by their character "fixed" charges against earnings. Where the ratio of these expenses to the gross is large and shows no tendency to decrease, the margin of safety for interest becomes less, as is shown in the illustration which follows.

(325)

Where, in the comparison of two roads with like character of business, it is found that these expenses of one require a relatively larger percentage of gross than in the case of the other, it means one or both of two things; either that, with relatively like rates for the work performed, the one road is not conducting its business with the same degree of economy as the other, or that, with like relative economy in the conduct of its business, the rates received by it for work performed are relatively smaller. In the use here of the word "economy" it is understood that the measure of economy is net results. To show the significance of this percentage to the investor, take, for example, the Chicago & Great Western Railway and the Chicago, Milwaukee & St. Paul Railway. The character of the tonnage on these two roads is very similar. For the year ending June 30, 1906, conducting transportation and general expenses consumed 48.0 per cent of Great Western's gross earnings against 37.6 per cent for St. Paul. These expenses have required about the same percentage of Great Western's gross earnings each year for the last eight years, and their ratio to gross earnings has shown no tendency to become less. When it is remembered that these expenses partake of the nature of a fixed charge upon gross, the full significance is apparent. Suppose the annual interest, taxes and rentals had required, in 1905-06, 20 per cent of the gross for both Great Western and St. Paul. Of Great Western's gross, then, 68.0 per cent would have been consumed by these "fixed" charges, leaving 32.0 per cent for maintenance and surplus. Of St. Paul's gross, but 57.6 per cent would have been consumed by "fixed" charges and 42.4 per cent would have been left for maintenance and surplus. It is clear that the margin of safety as represented by the surplus would have been far greater for St. Paul than for Great Western. The actual margin of safety for Great Western was less than as given above, because interest, taxes and rentals required 24.0 per cent of the gross for 1905-06 as against 13.7 per cent for St. Paul.

While the larger percentage of gross required for the conducting transportation and general expenses in the case of one road reflects what has been called "relatively less economy" in operation, yet this by no means implies a relative lack of efficiency in the management. A railroad might be operated with the highest degree of efficiency, yet the average rates received, and consequently the

gross earnings, might be so small as to make these expenses bear a very high ratio to the gross.

It will be shown in the discussion of the operating ratio, which follows, that the margin for maintenance and the fixed charges may be greater on the road with large gross earnings per mile, where conducting transportation and general expenses require, say, 42 per cent of the gross, than on the road with small gross earnings per mile, where conducting transportation and general expenses require but 35 per cent of the gross. For the first road 20 per cent of the gross might be ample for maintenance, while 35 per cent of its gross might be an insufficient allowance for the second road. The fact remains after all, that, other things being equal, where these expenses are relatively larger, the margin of safety is relatively less.

It is with great difficulty that many investors are dissuaded from the belief that the operating ratio counts for all. Where a road is reported as operating at fifty per cent it is not uncommon to hear it said that "it cannot be done." Another road reports operating at 75 per cent, and it is said that because of this high operating ratio there is manifestly "abundant opportunity for curtailment in expenses." It may be stated at once that the operating ratio, or the ratio which operating expenses bear to gross earnings, has of itself no significance whatever. A few examples will tend to establish this fact.

The gross earnings and operating expenses of roads "A," "B," "C," "D," and "E" may be taken as given in the table on page 136.

For the sake of argument, it is assumed that it requires for normal maintenance of road and equipment no more "per mile of road" for one of these roads than for another. It is clear that road "A," operating at 55 per cent, makes more liberal outlay for maintenance than roads "B," "C" or "D," which operate at 60 per cent, 65 per cent, and 75 per cent, respectively. Consequently road "A" has greater room for curtailment in its maintenance. Road "A" includes in its operating expenses sums in excess of normal requirements for maintenance, road "B" spends enough for maintenance, while "C" and "D" fall considerably below the average requirements. The \$1,500,000, or 15 per cent of its gross, expended by road "D" for maintenance of way on its 5,000-mile road is by far a relatively smaller outlay than that of road "A," where

Average Mileage Owned and Operated	A 1,000		B 1,000		C 2,000		D 5,000		E 1,000	
	Total	Per Mile	Total	Per Mile	Total	Per Mile	Total	Per Mile	Total	Per Mile
Gross Earnings.....	\$10,000,000	\$10,000	\$10,000,000	\$10,000	\$10,000,000	\$5,000	\$10,000,000	\$2,000	\$30,000,000	\$30,000
Maintenance of Way.....	1,250,000	1,250	750,000	750	1,000,000	500	1,500,000	300	3,000,000	3,000
Maintenance of Equipment	1,250,000	1,250	750,000	750	1,000,000	500	1,500,000	300	3,000,000	3,000
Ratio of "Maintenance" to Gross.....	25%	.....	15%	.....	20%	.....	30%	.....	20%	.....
Conducting Transportation and General.....	\$1,000,000	\$3,000	\$4,500,000	4,500	\$4,500,000	\$2,250	\$4,500,000	\$900	\$6,000,000	\$9,000
Ratio of "Cond. Trans. & Gen." to Gross.....	30%	.....	4.5%	.....	4.5%	.....	4.5%	.....	30%	.....
Total Operating Expenses	\$5,500,000	\$3,500	\$6,000,000	\$6,000	\$6,500,000	\$3,250	\$7,500,000	\$1,500	\$15,000,000	\$15,000
Ratio "Operating Expenses" to Gross.....	55%	.....	60%	.....	65%	.....	75%	.....	50%	.....
Net Earnings.....	\$4,500,000	\$4,500	\$4,000,000	\$4,000	\$3,500,000	\$1,750	\$4,500,000	\$500	\$15,000,000	\$15,000

(328)

\$1,250,000, or but 12½ per cent of its gross, is so expended on 1,000 miles of road. Now, take road "E." It is seen that while conducting transportation and general expenses require the same percentage or gross earnings, "E," operating at 50 per cent, spends for maintenance 140 per cent more than "A," which is operated at 55 per cent. The table explains itself. It is unnecessary to give more examples (many more might be given) to show that the operating ratio of itself is of no significance. Wherever it may have significance it will be found to be wholly the result of accident.

The statement of the income account given above shows that under fixed charges fall interest on the funded and floating debt, rentals of leased lines, etc., taxes and, in some cases, sinking fund payments. The investor should examine the annual report carefully to ascertain whether or not the full interest on all the bonds outstanding at the close of the fiscal period, has been charged in the income account for the period under review. Another important suggestion which may be made here, is that the investor ascertain what opportunity there may be attaching to this or that road for future saving in interest charges through refunding. The Chicago, Rock Island & Pacific Railway, for example, has little opportunity for future refunding. The Chicago, Burlington & Quincy Railroad, the Chicago & Northwestern Railway, and the Chicago, Milwaukee & St. Paul Railway will each save, through the refunding in the next ten years of high-rate interest-bearing bonds, at least \$800,000 per annum, in interest charges.

Very few roads are required to-day to set aside each year from earnings specific amounts for sinking fund purposes. The Chicago, Burlington & Quincy Railroad's annual appropriation for sinking funds is, it is believed, relatively larger than that of any other railroad in this country, excepting where annual payments are made in the retirement of short-time serial bonds, such as the Atchison, Topeka & Santa Fé Railway debentures, Pennsylvania Company 3½ per cent trust certificates, and the Chicago, Rock Island & Pacific Railway collateral trust bonds. In the latter cases the sinking fund charges are not included in fixed charges. For the year ending June 30, 1906, the sinking fund payments of the Chicago, Burlington & Quincy Railway, including interest on bonds held alive in the sinking funds, amounted to \$1,500,000. As

such appropriations are in their nature extraordinary, and are used for the retirement of obligations of the company, they must be given due weight in the comparison of the respective earning power of different roads.

As there is of itself no significance in the comparison of the operating ratio of different roads, so, from the investor's standpoint, there is necessarily no significance to be attached to the fact that one road has a bonded debt of \$30,000 per mile, while the bonds outstanding on another road amount to but \$15,000 per mile. Likewise, the fact alone that the fixed charges of one road amount to \$2,000 per mile of road against \$1,000 per mile on another shows by no means that the bonds of the latter are more secure. The essential consideration here, as in the case of those quasi-fixed charges, conducting transportation and general expenses, is the ratio which these charges bear to gross earnings and the ability of the road to pay these charges. It stands to reason that the New York Central & Hudson River Railroad with \$22,800 per mile gross earnings, could more easily provide for the interest on bonds aggregating \$60,000 per mile than could the "Atchison," with \$9,200 per mile gross, provide for interest on a bonded debt of \$30,000 per mile.

A popular argument advanced in the recommendation of a railroad's bonds is that the railroad is mortgaged for only, say, \$15,000 per mile. This may be the case and, under certain conditions, the argument should have considerable weight. Instances will be found where, with a comparatively low debt, the fixed charges are high, due to the large rentals which the railroad is obliged to pay for trackage into cities. The annual interest charges at 4 per cent on the railroad's bonds may be \$300,000 and the various rentals for terminals, etc., may be likewise \$300,000. The bonds will be recommended on the basis that the entire bonded debt is but \$7,500,000, or \$15,000 per mile. It is apparent that the combined charges for interest and rentals will equal the interest at 4 per cent on a bonded debt of \$15,000,000.

The fact that the railroad costs, in the building, so many dollars, and could not be reproduced except at a cost so much greater than the original cost, has not overmuch significance so far as the value of that railroad's bonds is concerned. It is the earning capacity which counts. An office building erected in

New York City at a cost of \$2,000,000 might readily be sold at any time for \$2,500,000, whereas such a building, erected in Sitka, Alaska, at a like cost, might not be worth \$50,000, for lack of earning capacity.

It demands no proof to show that fixed charges of \$600 per mile on one road might be a heavier burden on earnings than fixed charges of \$1,000 per mile on another, although in each case the percentage of gross required for these charges is but 20 per cent. Take as gross earnings for the first road \$3,000 per mile, and for the second \$5,000 per mile. Let conducting transportation and general expenses require 35 per cent of the gross for each road. Here is 55 per cent of gross consumed by "fixed" charges in each case. The one road has 45 per cent of \$3,000 per mile, or \$1,350 per mile for maintenance and surplus; the other has 45 per cent of \$5,000 per mile, or \$2,250 per mile remaining for maintenance and surplus.

As a rule, where, on the present basis of earnings, the fixed charges of any given road require less than 20 per cent of gross income, and where the surplus after the payment of all operating expenses (including liberal outlays for maintenance), amounts to about 20 per cent of the gross income, the interest on the road's bonds may be considered quite secure. It should be noted that this is not the same as saying that the interest is secure where the fixed charges require 50 per cent or less of the net income, for the reason that operating expenses (including proper outlay for maintenance) might in one case require 90 per cent of the gross income against 60 per cent in another case. The fixed charges in the first case might require but 50 per cent of the net, or 5 per cent of the gross income; in the second case they might require, likewise, 50 per cent of the net, or 20 per cent of the gross income. Should the gross income show a proportional decrease of, say, 15 per cent for each road, other things being equal, one road would show a deficit after fixed charges, while the other road would show a surplus.

The percentage of fixed charges varies in an inverse ratio with gross earnings. Observe the following tables wherein are given the income accounts of roads "A" and "B," the figures being stated both in full and reduced to a "per mile" basis:

TABLE I.

	A		B	
	1,000		1,000	
Miles Operated				
Gross Earnings	\$10,000,000	\$10,000	\$10,000,000	\$10,000
Operating Expenses	6,000,000	6,000	6,000,000	6,000
Net Earnings	4,000,000	4,000	4,000,000	4,000
Fixed Charges	2,000,000	2,000	3,000,000	3,000
Ratio of Annual Charges to Gross.	20 per cent.		30 per cent.	
Surplus	2,000,000	2,000	1,000,000	1,000
<i>Operating Expenses.</i>				
Maintenance of Way	\$1,250,000	\$1,250	\$1,250,000	\$1,250
Maintenance of Equipment	1,250,000	1,250	1,250,000	1,250
Ratio of Maintenance to Gross..	25 per cent.		25 per cent.	
Conducting Transportation	3,000,000	3,000	3,000,000	3,000
General Expenses	500,000	500	500,000	500
Ratio of Conducting Transpor- tation and General Expenses to Gross	35 per cent.		35 per cent.	

In the above comparison of the income accounts of roads "A" and "B," the operating expenses are in every respect similar. The fixed charges of road "A" require 20 per cent of the gross and of road "B" 30 per cent of the gross. The surplus of "A" amounts to \$2,000,000 and that of "B" to \$1,000,000.

Assume that gross earnings decrease 25 per cent, and that roads "A" and "B" are operated as before at 60 per cent. The income accounts would appear somewhat as follows:

TABLE II.

	A		B	
	1,000		1,000	
Miles Operated				
Gross Earnings	\$7,500,000	\$7,500	\$7,500,000	\$7,500
Operating Expenses	4,500,000	4,500	4,500,000	4,500
Net Earnings	3,000,000	3,000	3,000,000	3,000
Fixed Charges	2,000,000	2,000	3,000,000	3,000
Ratio of Annual Charges to Gross.	26.6 per cent.		40 per cent.	
Surplus	1,000,000	1,000	.....	.....
<i>Operating Expenses.</i>				
Maintenance of Way	\$950,000	\$950	\$950,000	\$950
Maintenance of Equipment	700,000	700	700,000	700
Ratio of Maintenance to Gross..	22 per cent.		22 per cent.	
Conducting Transportation	2,350,000	2,350	2,350,000	2,350
General Expenses	500,000	500	500,000	500
Ratio of Conducting Transpor- tation and General Expenses to Gross	38 per cent.		38 per cent.	

Here maintenance expenses are curtailed; conducting transportation expenses, while requiring a greater percentage of gross, are smaller, due to less business handled; and general expenses remain the same. The fixed charges remain the same, and they require 26.6 per cent of road "A's" gross and 40 per cent of road "B's" gross. The percentage of gross required for "B's" fixed charges is 10 per cent greater than in the example given first above, while the percentage required for "A's" fixed charges is about 6.6 per cent greater than it was before the earnings decreased. Road "A" shows \$1,000,000 surplus, while "B's" surplus is entirely wiped out.

The many consolidations and leases made by railroads in the last few years emphasize yet another consideration, which has an important bearing upon the margin of safety represented by the surplus earnings. The following illustration shows how, solely because of the losses resulting from leases by road "A," the margin over its interest charges was entirely wiped out, notwithstanding the fact that in the year following the taking of these leases, and by reason of them, the margin was increased fifty per cent. On page 142 are given the income accounts of six railroads (Roads "A," "B," "C," "D," "E," "F").

These income accounts are shown for three distinct periods representing three different conditions of affairs which will here be explained. Each of the roads has a capital stock of \$200,000, and each earned, as shown in the income account (Schedule I), \$20,000, or 10 per cent on its capital. Road "A," being desirous of extending its sphere of influence or of protecting its existing traffic, arranges for the lease of the other five roads, the rental being in each case 9 per cent on the capital stock.

The income accounts (Schedule II) show the result of these leases to the parent road "A" in a prosperous year, when gross earnings were as large as are shown in the income accounts first given (Schedule I). When road "A" was operated alone a surplus of \$20,000 was earned. Its equity in the surplus earnings of the leased lines in the year following the making of the leases was such that the actual surplus accruing to road "A" over all its fixed charges and guaranteed dividends was \$30,000.

Income accounts (Schedule III) show gross earnings of the roads reduced. The charges against earnings remain the same.

	A	B	C	D	E	F
SCHEDULE I.						
Gross Earnings.....	\$100,000		\$100,000		\$100,000	\$100,000
All Charges.....	80,000		80,000		80,000	80,000
Surplus.....	\$20,000		\$20,000		\$20,000	\$20,000
SCHEDULE II.						
Gross Earnings.....	\$100,000		\$100,000		\$100,000	\$100,000
All Charges.....	80,000		80,000		80,000	80,000
Net.....	\$20,000		\$20,000		\$20,000	\$20,000
Guarantees.....	00,000		18,000		18,000	18,000
Surplus.....	\$20,000		\$2,000		\$2,000	\$2,000
SCHEDULE III.						
Gross Earnings.....	\$95,000		\$95,000		\$95,000	\$95,000
All Charges.....	80,000		80,000		80,000	80,000
Net.....	\$15,000		\$15,000		\$15,000	\$15,000
Guarantees.....	00,000		18,000		18,000	18,000
Surplus.....	\$15,000		Df. \$3,000		Df. \$3,000	*Df. \$3,000

Road "A" earned, of itself, \$15,000, or $7\frac{1}{2}$ per cent on its stock, but owing to the guarantee of dividends on the stocks of the other five roads the deficit of each of these roads amounted to \$3,000. Inasmuch as these losses fall upon road "A" and are suffered by that road's capital stock, it appears that as against 15 per cent earned upon road "A's" stock in the previous year nothing is earned in the year of small earnings. Had road "A" not assumed obligations to the stockholders of the other roads its surplus earnings in the prosperous year would have equaled but 10 per cent on its stock against 15 per cent. On the other hand, in the year of small earnings the road would have earned $7\frac{1}{2}$ per cent on its stock instead of earning nothing at all. A study of the reports of the railroads will show, in many cases, that there exist conditions very similar to those described above in the case of road "A."

It has been made clear, from what has been said above, that no absolute rules can be laid down for measuring accurately the value of this, that, or the other railroad bond. The mere statement of any "rules" must of necessity be clothed with so many exceptions and modifications as to make one lose sight of the rules themselves. Each bond must be judged by the particular conditions which surround it. Nevertheless, experience has demonstrated the worth of certain well-defined methods for judging a bond's value, and it has been the purpose of this discussion to set these forth. It is believed that if the investor, in his study of the statements of income accounts of the railroads, is guided by the suggestions given in this paper, he will profit greatly. These suggestions, elementary as they appear to be, are not generally followed, and investors are frequently misled into believing that the margin of safety for a railroad's fixed charges is large, when, as a matter of fact, the reverse is the case.

In conclusion, let it be said that the actual value, as well as the market value, of a bond, often depends upon the character of the management of a railroad and the management's record for conservatism. The market value of excellent bonds has frequently been impaired, despite an increase of the value of the security behind them, owing to a general lack of confidence, on the part of investors, in the ability and integrity of those in the control of the policies of the several railroads.

ELECTRIC INTERURBAN RAILWAY BONDS AS INVESTMENTS

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Descriptive Definition

Characteristically different conditions of construction and operation separate the urban street railway from the interurban line; but due to local peculiarities of development and present inclusions, a distinct segregation of the two is perforce somewhat arbitrary.

The classification basis used by the Census Bureau designated as interurban all those roads which have more than half their trackage outside of incorporated municipality limits, whether or not the major part of their business was done within or without those limits. Included in this class, but constituting a more clearly defined group, are the so-called fast, long interurban lines composed of those electric roads more than fifteen miles in length, which have at least two-thirds of their track outside of municipal limits and operate their cars at a maximum speed of not less than twenty miles per hour.

Relative Extent and General Location

In accord with the above definition, the relative amount of interurban trackage for this country in 1902 was around 35 per cent¹ of its total electric railway of approximately 22,000 miles, or about 7,700 miles, which has meantime increased to doubtless not less than 10,000 miles at present, in view of the much greater increase of steam roads during the same period.

As to the regions especially occupied by interurbans, Massachusetts led¹ (1902) in the proportion—though not the absolute

¹Above facts appear from the special census report on electric railways in 1902, which contains latest public data on this subject. Under existing law, another census of electric and interurban railways will be taken during 1908, the statistics to cover the calendar year 1907.

amount—of its interurban lines, with about two-thirds (66 per cent) of its total trackage outside the limits of incorporated or of urban communities; Maine and Connecticut followed with about three-fifths (60 per cent) of extra-urban lines each; in point of highest total of interurban track, Ohio led with around 1,300 miles, while New York, Pennsylvania, Michigan, Indiana and Illinois possess a large amount of first class high-speed interurbans.

Some General Features

Broadly speaking, many Eastern interurbans, especially between the numerous nearby towns of New England, developed from urban railways extended often along rural highways, though sometimes located in part on private right of way; while in the West, electric lines have been commonly planned and built from the start on private roadway to furnish transportation in regions left untouched by steam roads or even to parallel and compete with the older lines which they closely resemble save in motive power.

Ordinarily organized and existing under general state railroad laws, the interurban is commonly invested with the usual powers—such as the right of eminent domain—and duties—as to maintain a practically continuous service—that attach to steam railroads.

Except as otherwise regulated by state statutes, as in the stringent Commonwealth of Massachusetts, interurban construction finance follows the general methods of present-day corporations, and properties are built with bond proceeds so far as the law and the underwriting financial institution or bond house will permit. That is, the bond issue authorized at the inception of a company is commonly hypothecated with a trust company under agreement to supply as needed money for construction purposes; on completion of the road, or a portion thereof, its promoters may sell to a bond house the previously pledged obligations, in whole or part, and with the sale proceeds liquidate the debt to the trust or other financial institution. Occasionally, one or more private bankers and bond dealers may perform the above underwriting function; but in any case where the law does not expressly provide that a certain minimum portion of first cost shall be paid by the stockholders themselves, as in Massachusetts, the existence of any so-called "equity" in the property or margin of safety and value for

and above the funds contributed by the original bond buyers must be obtained by the exactions of the underwriters or bond house. In other words, the promoters will normally attempt to have their enterprise constructed and started out of the proceeds of the bonds alone and to retain for their own compensation, either to sell or hold, the entire or most of the capital stock, thus rewarding themselves without the risk of their funds, save as the house which takes their bonds insists on the investment of more or less cash in the property beyond that supplied by the bonds. In this event, it is likely that the promoter will manage to sell privately the necessary stock to a comparatively few private persons by whom it is more or less closely held and hence seldom if ever appears in the market. Thus it transpires that the investing public sees and is offered almost solely the interurban *bond*, save where a percentage of stock may be included therewith as a "bonus" to facilitate the bond sale. The fact of such bonus offer is *prima facie* evidence of the existence of more or less so-called "water" in the stock capitalization of the particular company; while, though in a crude way only, the per cent of such bonus may roughly indicate the amount of such water: for example, the capitalization of a \$1,500,000 company whose entire assets have been derived from bond proceeds may be two-thirds stock, which may be distributed in several ways and in a multitude of proportions; one-half may be held by the promoter or one-fourth by the promoter and banker each, while the other half may be offered as a 100 per cent bonus with the bonds, and may easily be given where the stock represents no actual investment; or \$250,000 cash may have been for certain reasons actually invested by the promoters and their stockholding friends, when the amount of stock bonus given away will depend on whether it is believed that the bonds will sell for a sufficiently higher price to compensate; that is, as each \$100 share of stock represents \$25 cash, instead of ten shares being given away with each bond, but two shares, or a stock bonus of 20 per cent, representing \$50 cash, may be offered; to make this worth while, the bonds which, without the offer, would sell at perhaps ninety-five, should, with the stock bonus, sell not less than five points higher, or above par.

Interurban bonds, however, it should be noted, are simple and few in type as compared with those of the older steam railroads, being mostly first mortgage issues, with an occasional consolidated

or refunding bond or even a rare second mortgage, though these latter are generally concealed under one of the last previous titles. Furthermore, while around ninety-five per cent in number and sixty-five per cent. in value of steam railroad "firsts" are estimated to be first liens in name only,² the interurban "first" is almost uniformly a "first" in fact. Five per cent is the regular interest rate, though there is an occasional first mortgage 4½ per cent bond.

In the matters of duration and redemption interurban bonds vary somewhat from the usual, and commonly run for the relatively short terms of twenty, twenty-five or thirty years. Prior to maturity, however, and uniformly on any interest date from, or more commonly five or sometimes ten years after, their issue, and after due notice to the holders, interurban bonds frequently may be called for redemption, sometimes as a whole, but generally in part, and almost invariably at a premium of from five to ten points.

While the contingency of this feature may be theoretically undesirable for trustees and other investors who desire to leave their funds undisturbed after their investment on a satisfactory basis, it is equally attractive to other investors because of the possible extra profit in case of a call for redemption and the resultant opportunity to shift or reinvest the proceeds, if desired, on a possibly better basis, especially in times of rising interest rates.

Sinking fund provisions, also, are a sometimes characteristic and uniformly desirable feature of interurban bonds from the investor's standpoint, as noted later.

These securities within a comparatively few years have become for the future a distinct and prominent investment type regularly handled by several of the best known and most reliable investment houses which make more or less of a specialty of the bonds of interurbans and allied properties that they sometimes control or which are often managed by the operating department of a large and reputable engineering firm.

Only in rare cases are these bonds listed on an exchange, as they are usually for comparatively small aggregate amounts and are often locally and for the most part closely held by permanent investors. Being unlisted, their price normally fluctuates less than that of similar listed issues which are subject to the varying influ-

²See article by the writer in the *Bankers' Magazine* (N. Y.), for December, 1906, p. 879.

ences of a theoretically more fluid market: thus, a comparison of approximately present quotations for certain representative bonds with their bid prices about fifteen months previous, a period marked by unusual dullness and decline in the bond market, shows that quoted price declines for six representative listed *prior lien* bonds of steam railroads ranged from three to eight and one-half points and averaged considerably over five and one-third points; similar declines for six representative *first mortgage* bonds ranged from six and five-eighths to eleven and one-half points, and averaged about eight and eight-tenths points; or an average fall for these twelve listed bonds of somewhat over seven points: turning to the price quotations for one dozen unlisted but similarly quoted *first mortgage* interurban bonds of properties located in different parts of seven distinct states, the price variation ranges from zero to six points, an average of less than three and one-half points for the list; or, if a thirteenth and unfortunate company whose bonds declined ten points is included to offset those which remained practically stationary, the average decline is less than four points.

In this connection it should be noted that "listing" in itself does not assure an active market nor more ready quotations for a security, though it may increase its favorable reception by banks and money lenders as collateral, but that a security's market activity depends largely on the size of the issue and the closeness with which it is held, which will normally vary inversely with its general standing as a non-speculative holding.

Practically, a market for these securities can usually be found at any time, save in seasons of severe depression or panic, with the house through which they were put out.

Interurbans in General as a Type for Bond Investment

Consideration of any corporate enterprise type as a form of investment may be approached from the standpoint of a bond or of a stockholder, and proceed with reference to the type as a class or the individual enterprise. Few types of possible investment can be sweepingly condemned, as must be all offerings of oil and mining prospects as unequivocally and hopelessly beyond the pale of investments in any sense whatever. In most lines of corporate activity, however, good, bad and indifferent enterprises are found; so that

any investment study to be of value should regard the normal indices of a reasonably sound and desirable proposition rather than merely the general financial results of the type industry as a whole.

As interesting and indicative of the general status of the interurban industry in this country, however, some average statistics for about one hundred and fifty interurban railways³ in seven representative states may be noted. Safety of principal and regular continuance of income instalments, as the two leading questions of bond and of all true investors—in view of the contingent legal rights and powers of a mortgage creditor—indicate the general lines of examination. Without further analysis it may be taken that the chance of principal recovery depends on the ratio between the amount of claim and value of the encumbered property, which latter in turn depends first upon its cost, secondly upon its character as affecting what may be termed its residual value, and thirdly upon the earnings above operative costs which the property can produce. An exact determination of either the actual or proper ratio in the case of interurbans would call for a more skillful weighing of the fluctuating and uncertain elements of value than has yet seemed possible or would be here feasible to attempt. Only rough approximations can be made, assisted by comparisons with steam railroads. But it should be noted in this connection that interurbans are occasionally joined with other enterprises, such as the supply of light and power, so that a pure interurban electric transportation proposition for comparison with a steam transportation enterprise is not always to be had.

Starting, however, with the question of unit costs of tangible property as the central basis of security, the following general observations may be made as approximately indicative of the facts. Compared with a similar steam railroad, the first cost of an electric road for reasonable speed, frequency and uniformity of service under average conditions is commonly from around one-fifth to one-third greater. So far as right-of-way, roadbed, track, stations, etc., are concerned the costs will generally be substantially alike for steam or electric traction; the rolling-stock with its motor trucks and essential wiring and insulation will be perhaps five to ten per cent more costly than corresponding steam railroad equipment; while the generating stations and distributing systems are costly

³From original data compiled by the writer.

items against which locomotives are practically the only offset on steam lines. Central stations may be estimated to cost around \$125 to \$150 per kilowatt capacity, including land and buildings, the tendency being towards increasing first cost to reduce operation expenses. Distribution or feeding systems at about \$1,500 to \$2,000 or over per mile are expensive whether current is supplied directly or through transformer sub-stations which may be valued at around \$40 per kilowatt. The contact system most common on interurbans is the overhead trolley which costs approximately \$4,500 to \$5,000 per mile for steel pole and bracket support, or from one-fifth to one-fourth more than third rail construction.

With these general suggestions as to relative first cost, the comparative average bonded debt upon interurban and steam properties may be noted. From the compiled data before mentioned, it appears that the average funded debt per mile of sixteen interurbans in Maine was \$17,625; and for twenty-one companies in Massachusetts—out of twenty-four examined, three having no bonded debt—\$10,784; or an average for thirty-seven interurbans in the two states of \$14,204 per mile. These states may be taken as representative of New England, which constitutes Group I of the Interstate Commerce Commission's classification of steam railroads, whose bonded debt in this group for the same period averaged \$26,773. In Group II of steam railroads, or the North Middle Atlantic states, their average bonded debt is \$65,308 per mile, and that of thirty-three interurbans in New York as typical was \$23,980. Group III embraces Ohio, Indiana and Michigan, the funded debt of whose railroads is placed at \$46,169; that of fifty-two interurbans in the same three states averages \$25,825. Group VI shows a steam railroad funded debt of \$26,298 per mile, while twelve interurbans in Illinois are bonded for an average of \$33,000 per mile; this comparison, however, is hardly fair, as the group's steam roads cover parts or all of seven large states of the Central and Northwest. Summarizing, the average for 134 interurbans in seven states which are especially their home is \$23,267 of bonded debt per mile; that of steam railroads in Groups I to VI inclusive—except Groups IV and V—is a little over \$42,000 per mile, or over \$46,000 per mile for Groups I to III inclusive, as against \$21,644 in the first six interurban states.

Judged, accordingly, by steam railroad standards, the mileage debt of interurbans seems safe, aside from the fact that the latter

are more costly than the former per unit of construction, the present minimum cost per mile of single track, including equipment, for first-class interurbans being placed by competent engineers at not less than \$25,000 to \$30,000.

To maintain these assets at approximately their face value involves not only their technical "maintenance"—which for roadway and structures may be put at about \$1,000 per mile, and around two and a half cents per car mile for up-keep of cars and motive power—but an allowance or offset for "depreciation."

In accord with steam transportation usage, it has not been customary so far for interurbans to provide particularly for any natural depreciation of their physical property, which in general may be considered about 5 per cent for power house and equipment and $2\frac{1}{2}$ per cent for overhead construction and distributing system. For certain classes of tangible assets it is evident that regular "maintenance" is sufficient and covers and includes depreciation also, as with ordinary rail or tie renewals, or, in general, wherever the replaced article is a complete and independent unit in itself. The general justification offered for this practice, however, is that appreciation in value of interurban properties due to the attendant development of their territories and also to their increased earnings therefrom has both offset the normal depreciation and permitted, when necessary, increased capitalization to provide funds to cover depreciation instead of deducting the same from earnings. Whatever validity this view may have up to the present time, however, it should be noted that as the country's rate of development becomes progressively slower, it will become more and more necessary to provide against the inevitable deterioration of physical property an available monetary fund as offset to maintain at near their nominal value the assets which are the bondholders' immediate security.

Turning briefly to the question of residual value, it should be here further remembered that the existence of bonds implies the contingency of possible trouble ahead and foreclosure, and that investment investigation properly contemplates a proposition in the twofold aspect of a liquidating as well as a going concern.

In view of the particular character of electric transportation plants—and without reference to the demand for their continued

operation as provided by the general railroad law under which they may be incorporated—the residual value of a standing interurban would seem higher than that of a similar steam railroad, especially where the valuable trolley wire is used, since its source of motive power is available for other than traction purposes, in accord with an evident principle which may be stated as a general rule that residual value varies inversely with the degree of specialization of the article or property in question.

Another possible asset which may be briefly referred to in this connection is the bond sinking fund, which is a not uncommon feature with interurbans. Out of twenty-four Massachusetts interurbans, nine, or 37.5 per cent, possessed sinking or other special funds, though the proportion of same to funded debt was not large, being a trifle less than one per cent. for nine companies; or, omitting one rather exceptional case, a little over one and a half per cent. for eight companies out of twenty-four.

Where franchise privileges, especially when limited, are enjoyed, the propriety of a sinking fund is obvious; although even when a company occupies its own private property such a fund may be desirable to increase the margin of safety and offset the deficiency between the funds received and actually invested from bonds sold at a discount and the face amount of the debt to be repaid.

Coming to the question of interurban income considered as the source of interest payments, as of sinking fund accumulations, but without regard as to how much value it imparts to the physical property which is the medium of such income and the central item in the directly realizable security of a bondholder, it may be noted that the latter's immediate concerns in view of his legal position are the questions of gross income and operating expenses.

For convenient comparison with steam railroads, income may be calculated by the mile, though such estimates are generally less accurate and significant than data on a per capita basis. Thus, the average gross receipts per mile for seventeen interurbans in Maine were \$4.591, and for twenty-three companies in Massachusetts \$3.912; or, for the forty companies in Group I of steam railroads an average of \$4.251, as against steam road passenger earnings of \$5.263 per mile in the same group. Thirty-four interurbans in New York state showed average gross receipts per mile of \$4.115,

as against steam road passenger earnings per mile of \$4,513 in Group II for the same period. Forty interurbans in Ohio had gross receipts of \$3,868 each per mile; five Michigan companies averaged \$5,465; and thirteen Indiana companies \$5,161; or an average for the fifty-eight companies of \$4,831 per mile, as against \$2,481 per mile for steam roads in the same states which constitute Group III. In Illinois, thirteen interurbans showed average receipts of \$4,588 per mile; while the railroads of Group VI of which this is one state averaged passenger earnings of \$1,786. Summarized, the average passenger receipts for the four steam railroad groups stands at \$2,198 per mile, compared with \$4,446 for interurbans.

Operating expenses for interurbans in these several states range from around fifty-five per cent of gross receipts, as an average for Illinois, to seventy-one per cent as the average for thirty-three companies in New York, though if an additional company be here included which operated at a large loss, or 257 per cent of its gross receipts, the average for this state is brought up to about 76.5 per cent. In general, a fair ratio between gross receipts and costs of operation for interurbans is about sixty per cent for comparatively level and sixty-five per cent for roads with heavy grades.

If, finally, to determine in a general way the margin of safety for interurban bond interest and the apparent distance of possible default, the interest rate is assumed to be five per cent and the approximate average operating ratios for each state are taken together with the average gross income and funded debt above shown, the following rough results appear: Maine, average net income after deducting operating expenses and taxes is practically one and two-thirds times the bond interest charge, leaving a balance or gross surplus equal to about sixty-seven per cent of the interest; Massachusetts, average net income about two and one-half times the bond interest, with ratio of gross surplus to interest charge over 145 per cent—a most ample margin; in New York, average net receipts are but little more than enough to pay fixed charges, and average surplus but about three and a half per cent of the yearly interest per mile; Ohio shows net earnings of over one and a fourth times the average interest charges, and surplus equal to twenty-six and a half per cent of the average interest; Indiana, net receipts over one and a half times average interest, and gross surplus over fifty-nine per cent of the latter charge; Michigan interurbans average net

income over one and two-thirds times their average funded interest, with a gross surplus of sixty-nine and three-quarters per cent of the interest; Illinois, net revenue about one and a fourth times the average interest, and average gross surplus equivalent to over twenty-two per cent of the average interest charge per mile. Summarized for the seven states, interurban net receipts average over one and a half times, and average surplus is fifty-six per cent of their interest charges.

To shed a supplementary light, however, on these figures, some further data are appended relative to the failure of certain interurbans in these same states to earn fully their fixed charges. Twenty-two out of one hundred and one companies examined in seven states, or approximately twenty-one per cent, showed deficits for the period taken, as follows: In Maine, four out of sixteen companies, or one-fourth, showed deficits; in Massachusetts, five out of twenty-four, or around one-fifth; New York, ten out of thirty-one, or one-third approximately; Ohio, one out of eleven; Michigan, one out of five; Illinois, one out of eight; while all of six companies in Indiana had a surplus to spare.

The Particular Interurban

Continuous income as the purpose of investment implies production of net revenue above costs of operation. Aside from matters of legal privilege or duty and of right accountancy as determinative of financial results, such success involves two main factors as the objects of investigation in a particular case, viz., (a) the amount and character of the business or traffic, and (b) the cost of its acquisition and conduct. Furthermore, these inquiries will be applied in any instance to either a "going" or to a new or so-called "construction" enterprise. Cost of acquiring traffic in either event practically resolves itself primarily into the subject of necessary outlay or investment in plant and accessories—as amusement parks, etc.—which is largely a question of wise engineering practice and expense, and cannot here be discussed further than as already noted. Cost of conducting traffic depends—aside from the influence of economical engineering—upon skilful administration, which is most readily tested by the average and specific statistics of similar enterprises. Aside from the general ratio of operating expenses to gross

income already given, the operative efficiency of interurbans may be further briefly indicated by their general cost of operation per car mile, which in such states as Maine and New York average for nearly fifty interurbans between about $16\frac{1}{4}$ cents as an average minimum to around $17\frac{3}{4}$ cents as a similar maximum, though in a few specific cases this item is as low as 10 cents and as high as 53 cents. While average statistics of any type of enterprise as a whole are of limited value, when extremes are excluded, as criteria in specific cases, and the latter must uniformly be judged on their individual merits, it may be generally stated that electric railway operating costs will not greatly differ from those of similarly situated steam roads, and will normally range between about \$6,000 to \$7,000 per mile of track annually for first-class high-speed interurbans, economies in some lines being offset by added cost in others; where it is attempted to run single cars at high speeds the much greater power required greatly increases the car-mile cost, especially if the service is comparatively infrequent; this, however, may be appreciably reduced by multiple-unit operation: on the other hand, the advantage of electric operation is gained by frequent service at reasonable speeds, though unit operating costs will be seldom reduced to fully offset the possibly greater unit charges due to larger required capital investment. The financial gain of electric traction comes rather from the marked proportional increase in travel that follows introductions of the interurban, and which in some cases has averaged over a term of years from one hundred to the astonishing amount of around one thousand per cent per annum.

Amount of available traffic, as the first and decisive consideration for every designed road, may be approximately gauged for a going enterprise in the financial results shown in its reports which are the ordinary investor's chief source of information. For a new enterprise, however, amount and character of probable tributary traffic must be calculated independently and in advance of performance, and are questions of the actually available population who will normally patronize the road, and their traveling-habit. The general rules followed by engineers in an estimate of probable traffic in the case of a certain projected interurban are highly interesting and helpful in a study of the desirability of any proposition as a conservative investment, but cannot here

be given. A minimum traffic, which can be determined mathematically, is plainly necessary to success, and, in view of the essentially local nature of the interurban as yet, depends on a sufficient tributary population, the amount of which will vary with its character and particularly its distribution, to which practically not less than three-fourths of interurban success or failure may be attributed. In general, interurbans may be classified as to their population distribution into those which connect a large and a smaller center and those between two centers of approximately the same size. As between lines which serve the same aggregate population differently distributed differences of total traffic may be expected, though, as suggested, no uniform ratio of amount of population to patronage is established: in exceptional cases a tributary population of but 210 persons per mile has enabled an interurban to show gross receipts of \$2,500 and net income of \$524 per mile, with a percentage net income to capital stock of 1.94, even with the operating ratio abnormally high; similarly, roads of 320 and 360 people per mile have shown gross revenue of \$4,500 and \$2,000 per mile respectively, and corresponding nets of \$585 and \$400 per mile, although operating ratio in the first case was very high.

On the other hand, populations of 1,300, 1,800 and 2,000 per mile have shown a deficit in net income, though the exact cause of the deficiency is not always easy to discover from statistics. In general it may be said that, while the distribution of a given population will make a great difference in its production of traffic, the number of tributary inhabitants should not fall below about 600 per mile for a successful interurban, and that its traveling habit, which may vary widely, should be indicated approximately by gross receipts per capita of from \$2.00 to \$2.50 for a line between smaller terminals, of perhaps 20,000 inhabitants and under, and of somewhat near the same size, to around \$6.00 per capita gross for an interurban located between a relatively small and a large town.

Save in occasional cases, light freight and express traffic produce but a relatively small part of interurban income, although about sixty-five to seventy per cent of interurbans carry such goods; in Massachusetts the per cent of total gross income derived from this source was only about three-fourths of one per cent for

the last reported year; in Ohio, for an earlier period, the average per cent of freight and express earnings for four railways was about 10.5 per cent, the average express earnings for eleven roads less than three and a quarter per cent, and the average freight earnings for twenty-one lines around 8.9 per cent, while the total earnings from freight and express per mile of track for twenty-two railways was a little over \$161.50.

Once established, however, a marked increase of interurban gross receipts should normally follow, from the effect of cheap and convenient transportation facilities on a people's travel-habit; thus, in the case of eleven interurbans in four states a consecutive yearly increase in gross receipts of twenty-six per cent for the second over the first year, about eighteen and a half per cent for the next, and nearly fifteen per cent for the third year were shown without any material change in the track mileage.

In fine, and without any attempt at elaborated conclusions, it may be safely said that, as a class, interurban bonds furnish a type of investment that combines an excellent rate of income with adequate security in all judiciously handled enterprises, which also commonly enjoy comparative immunity from popular hostility in this troubled era of rate regulation and antagonism to very large corporations partly, perhaps, because of their relatively small size and also their usually harmonious relations with the inhabitants of the regions which they traverse.

REAL ESTATE BONDS AS AN INVESTMENT SECURITY

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In considering real estate bonds as an investment security, it is essential to examine them from the standpoint of the fundamental requisites of all good investments, namely, safety, interest return and convertibility. Of these requisites, that of the safety of the principal under all conditions which may arise is by far the most important and the one to which most consideration will be given.

It may be said at the outset that the principal advantage which real estate has over other forms of security rests in the certainty or stability of its productive power. All value in real estate is the result of income capitalized. In the case of city real estate, the natural causes which lead to the growth of cities in certain locations create a permanent demand in those locations for areas on which to live or transact business. Such advantages in location are paid for in the form of rent, and as long as a community exists there will be income from the use of locations within it, and real estate values founded upon this income. In regard to farm lands, the productivity of the soil creates an annual income, a part of which, as rent, may be capitalized into value. As long as the soil is productive, income, and therefore real estate values, will exist.

The basis of value for real estate being its productive power, and this being dependent on permanent forces, real estate furnishes the soundest basis against which to issue investment securities. Such securities are based upon a mortgage of the real estate to secure an obligation. While any mortgage might secure a series of bonds, instead of a single bond or note, which might thus be called "real estate bonds," they would not differ in any essential, except that of convenience, from the ordinary mortgage transaction. What is meant by "real estate bonds," or mortgage bonds in the investment sense, is a series of bonds in convenient denomina-

nations secured by real estate mortgages, the bonds being issued by a company formed for that purpose and itself obligated on them. Such mortgage companies have been developed so long in Europe, that any study of the subject must include an examination of the history of the development of the mortgage business in Europe, and other parts of the world subject to European influence, as a prerequisite to the understanding of real estate bonds as an investment security in this country.

So large a part of the world's wealth consists of real estate, that the use of it as security for debt has been a matter of the most vital importance in the commercial progress of the race, since it gave to land a partial convertibility, and prevented the capital invested in real estate from being wholly fixed. Down to the beginning of the last century, however, mortgages were restricted to transactions between individuals who had personal knowledge of the particular property offered as security. This necessarily confined possible mortgage lenders to those residing near the property on which a mortgage was desired, and as capital could not move freely to the places where it was most needed, great differences in interest rates existed between different localities.

Among other disadvantages attending this condition of things, was the fact that the effort to find individual lenders, having the exact amount needed, made it unduly expensive to obtain loans, and resulted in economic waste through unnecessarily high commissions. Individuals were also unwilling to make long-time mortgage loans which were nearly or quite inconvertible in their hands, and this resulted in forcing borrowers to pay commissions for obtaining new loans at comparatively frequent intervals, and in exposing them to the risk, at each maturity, of being unable to replace the loan. Individuals also did not ordinarily wish to have their capital returned to them a little at a time, but wanted the full sum at the termination of the loan. This prevented the use of amortization loans, or loans which are paid off by degrees throughout the life of the loan. This type of loan, which is almost universal on the Continent of Europe to-day, and is coming into more frequent use in this country, so greatly increases the safety of mortgage investments that the resulting reduction in interest rates may be sufficient to enable a borrower to pay off a loan in forty or fifty years, by an annual payment for principal and interest no greater

than the payment for interest alone would be, were the loan without the amortization feature. It may be added that loans for fifty or seventy-five years would be for too long a period to be safe, unless for a constantly decreasing amount.

Perhaps the greatest single objection, however, to the old system of conducting the mortgage business, arose from the fact that most individual investors could not be mortgage experts, and as a result frequent and serious losses were made, which tended to increase the whole level of interest rates.

So serious were these objections that Frederick the Great, after the successful termination of the Seven Years' War, took steps to remedy them by approving, in 1770, the formation of the first association for conducting the mortgage business, and lending to it 200,000 thalers at 2 per cent interest as a capital with which to commence business. This association, "Die Schlesische Landschaft," was formed of the land-owning nobles of the Province of Silesia, where the great victories of Frederick had almost all been won. In this district buildings had been burned, cattle and farm implements destroyed, and the demand for money had become so urgent that, even on the safest mortgage loans, interest rates had risen to 10 per cent, with an additional commission of 2 per cent to 3 per cent.

Before describing such an association it may be well to say that there exist side by side in Europe these mutual associations, which deal largely if not exclusively in farm loans, and mortgage-banks, or stock companies, for dealing both in city and farm loans, the latter having appeared almost simultaneously in Germany, Austria and Belgium about 1835. These two forms of conducting the business operate through the same method, which is to make mortgage loans and then issue their own bonds, secured by an equal amount of mortgages.

While there are, of course, differences between the laws governing mutual mortgage associations at different times and in different countries, the great majority have certain principles in common. They are formed with their borrowers as members, and each member is responsible for any loss of the association through bad loans, a condition which acts as a check on the committee of members which approves applications for loans. They began generally by making loans not in money, but in bonds of the asso-

ciation, which the borrower then had to sell for the best price he could; though, as a surplus was accumulated, this feature was often given up and the loans made in cash, the bonds being sold by the association. Their loans are long-time loans, generally from fifty to seventy-five years, with an annual payment sufficient to retire the principal of the loan, and with privileges of anticipation; and the associations are restricted by law as to the locality in which they may make loans, the character of the property they may loan on, and the margin of security they must have.

A later development in Germany and the Scandinavian countries has been a central association, which makes no loans itself but issues bonds secured by the less well-known bonds of local associations, thus obtaining a lower rate of interest through having better credit. The mortgage companies proper are stock companies, which are conducted along lines similar to the associations, and are subject to similar legal restrictions. There is, of course, no individual responsibility to make good the losses resulting from bad loans, the place of this being taken by the capital and surplus of the company, and by the limitation by law, of issues of bonds to a certain number of times the capital.

To Germany belongs the credit of originating and developing the business as it is now conducted, though other countries have not been slow to imitate her methods. In Germany the number and size both of the companies and associations has gradually increased, and especially since the Franco-Prussian War, until there are now about thirty-five companies and twenty-five associations, having an aggregate amount of bonds outstanding of over 8,000,000,000 marks, considerably more than half of these having been issued by the companies.

The Credit Foncier of France, founded in 1852, is the largest and most widely known of all mortgage companies, and the magnitude of its operations may be judged by the fact that for many years past its outstanding bonds have amounted to between 3,000,000,000 and 4,000,000,000 francs, while its credit is so good that the rate of interest on its bonds gradually dropped to 2.60 per cent some ten years ago; though a more recent issue was at 3 per cent. There are in France in addition to the Credit Foncier, which enjoys special privileges from the government, and, consequently, has no rivals, only small local mutual associations for

making farm loans in restricted districts. More than two-thirds of the mortgage loans of the Credit Foncier are on city property, and the remaining one-third on farms. Although in the early years of the company's history a great majority of the city loans, in amount, were on property in Paris, the loans in other French cities have for some years past exceeded those in Paris, the company thus showing a growing tendency to distribute its loans more widely.

In Austria-Hungary both mortgage companies and associations are well developed, and fill the same place in the business system of that country as in Germany. More than 600,000,000 florins of Austrian and Hungarian bonds are listed on the Berlin Exchange. The eleven mortgage companies alone have bonds outstanding amounting to over 450,000,000 florins.

In Italy it was not until 1866 that a general mortgage law was passed, under which eight companies were formed, each of which was restricted as to the territory in which it could loan. By 1884, when the law was changed, these companies had loans of over 1,000,000,000 lire. By the new law the restrictions as to locality were done away with, and mutual associations were authorized. The next year, however, the Italian National Bank was authorized to go into the mortgage business, and 25,000,000 lire were set aside from its surplus for this purpose. It was soon found that this large bank could obtain funds on better terms than the smaller companies, and in 1890 Italy decided to abandon the old system entirely and to give to this one bank the exclusive right to issue mortgage-bonds, and other special privileges, thus following the example of France.

In Russia it is natural to expect more backward conditions than in other parts of Europe, yet even here mutual mortgage associations have been created in different districts, the oldest of them dating back to 1803, and in 1873 the Central Mortgage Bank of St. Petersburg was formed, with a capital of 15,000,000 roubles, one-third of which was owned by the government, to issue bonds based not directly on mortgage-loans, but on the bonds of the local associations.

In the Scandinavian countries, including Finland, each has developed its mortgage business in imitation of that of Germany, but along independent lines. In Denmark the mutual associations are highly developed, the oldest of them dating back to 1795, and

there is also one large mortgage company. In Norway there is only one mortgage company, a national concern operating with capital furnished by the government. In Sweden there are two central associations, each issuing bonds against loans made by local provincial associations. One of these sets of associations deals in farm loans, the other in city loans. In addition, there is one strong mortgage company, which loans in the City of Stockholm. In Finland there is a mutual association; and a company, whose bonds have been largely sold in Germany.

In most of the smaller countries of Europe we find, as in Germany, a dual system of mutual associations and stock companies, sometimes with special privileges from the government after the model of the Credit Foncier. The latter is the case in Spain, where the Banco Hipotecario has since 1875 had a practical monopoly of the mortgage business, and also in Portugal, where only one company is authorized to issue mortgage-bonds. In Holland the mutual associations are of less importance than the mortgage companies, which exist not only for the purpose of making loans in Holland, but also for loaning in the United States and in the Dutch Colonies. Belgium has two large mortgage companies and two associations which are old and well established. Switzerland is provided with over twenty mortgage companies, about half of which operate only in their own cantons. In Greece the National Bank was authorized in 1841 to make mortgage loans, and in 1879 a mortgage company was founded. Servia has one mortgage company, whose bonds, guaranteed by the government, are sold in Germany. Roumania has several mortgage companies.

The mortgage business of Algeria and Egypt is done by French companies, and their bonds are sold in the French market, as are also those of French companies loaning in Canada and Argentina. Among other countries where the European system of conducting the mortgage business, by issuing bonds against mortgages is found, we may mention Brazil, Mexico and the Argentine Republic.

An exception to the general prevalence of this system is England, whose example has largely influenced the United States, though it is doubtful if the causes which led to a different development of the mortgage business there are applicable here. England has no mortgage company loaning on English property and organized on lines similar to those on the Continent, though English

and Scotch companies operating in the United States, Canada, Australia, Cape Colony, Natal, Mauritius, Argentina and Peru, issue bonds in the same manner as the European companies. One of the principal reasons is no doubt the prevalence in England of long-time ground leases, which do away with much of the necessity for mortgages, since instead of owning the fee with his own capital and borrowing on mortgage for improvements, the tenant under a long lease puts his own capital into the improvements and pays an annual ground rent in place of interest on a mortgage. Then, too, legal restrictions, such as the life-estates and entails commonly met with in England, are great obstacles to the mortgaging of property. And it must be remembered, also, that since the security in England depended to an unusual degree on questions affecting legal titles, the mortgage business naturally fell largely into the hands of lawyers, who still control a great part of English mortgage investments.

In any consideration of the methods of loaning in Europe, the most striking fact is that never, in the 135 years of their existence, has there been a failure of a European mortgage company or association, with insignificant exceptions due to dishonest management. Such long-continued safety and success make it interesting to examine the safeguards established by law with a view to preventing losses on bad loans. The principal of these are four in number, and have to do with the class of real estate accepted, the percentage of value to be loaned, the limitation of the volume of bond issues in proportion to capital, and the requirement of annual payments in reduction of the principal of loans. While some variations are naturally found in different countries, the underlying basis is found on examination to be surprisingly uniform.

Taking up first the class of real estate accepted, we find that no company is allowed to loan on vacant land, or other unproductive property. In the laws of the Prussian Central Boden-Kredit Company, one of the largest of the German companies, the restriction is expressed in this way: "The company shall make loans only on property yielding a permanent and sure income." No loans, also, are permitted on mines and quarries. To these prohibitions the Credit Foncier adds theatres; and mills and factories, except where valued at what they would bring if sold for a different purpose.

The Mortgage Bank of Norway prohibits loans on factories, as do many other companies, and, in addition, loans on "uninsured

buildings or country houses without land," in this resembling the Bavarian Mortgage Bank of Munich, which prohibits loans "on country castles or on buildings which cannot be rented separately from the estates to which they belong." A peculiar provision in connection with the Berliner Pfandbrief Institute, whose loans are restricted to the City of Berlin, is that it can only loan "on buildings that have been in use for three years." Undivided interests in property are universally excluded as security.

The second safeguard is the limitation on the percentage of value to be loaned. The only companies or associations ever allowed to loan more than $66\frac{2}{3}$ per cent of the value of property are the Hamburg Association, founded in 1782, and the Deutsche Grundschuldbank of Berlin (when loaning on city property), which could loan up to 75 per cent. Another exception is Holland, where 75 per cent is usual on land and 60 per cent on buildings. In Germany the usual limit is $66\frac{2}{3}$ per cent of the value, though the Prussian Central Boden-Kredit Company is limited to 50 per cent of the value of buildings and $66\frac{2}{3}$ per cent of the value of land, while on vineyards and forests the limit is $33\frac{1}{3}$ per cent. The Deutsche Grundschuldbank of Berlin is limited on farm loans to 60 per cent and the Bavarian Mortgage Company of Munich to 50 per cent. The Deutsche Hypotheken Bank of Meiningen takes special precautions against overvaluation by limiting its loans to 60 per cent "of the value when sold under unfavorable circumstances." The limitation is sometimes expressed in terms of rentals, the Deutsche Hypotheken Bank of Berlin, for instance, being limited to ten times the official assessed income in cities, and twenty-five times the assessed income on estates, and the Süddeutsche Boden-Kreditbank to twenty times the net income. Some companies in Germany are, however, restricted to 50 per cent of the value of property, and others to 60 per cent of the land value and 50 per cent of the value of the buildings.

Turning to other countries, we find that the Credit Foncier of France is limited to 50 per cent, except on forests and vineyards, where the limit is $33\frac{1}{3}$ per cent. In Italy the limit for mortgage companies, originally placed at 50 per cent, was raised in 1881 to $66\frac{2}{3}$ per cent. In Russia the St. Petersburg Credit Association is limited to 50 per cent, and the same is true of the associations in Belgium, though the mortgage companies there loan up to $66\frac{2}{3}$

per cent. The largest mortgage bank in Austria is limited to 50 per cent. In Denmark the companies are limited to 60 per cent on land and 50 per cent on buildings, while the associations are limited to 50 per cent on land and 40 per cent on buildings. In Norway the limit is 60 per cent on all farm loans, and loans in Christiania and Bergen, while it is 40 per cent to 50 per cent in other towns. In Sweden the limit is generally 50 per cent, though the one mortgage company there has been raised to 60 per cent. In Argentina and Mexico the limit is also 50 per cent.

These percentages may be compared with the limitations imposed by law in this country for the mortgage investments of trustees and savings banks, and those generally adopted by custom. In New York State the limit for trustees is $66\frac{2}{3}$ per cent and for savings banks 60 per cent, while except in a few other large cities 50 per cent is a maximum, and in smaller cities and newly developed agricultural districts loans are not often made for more than $33\frac{1}{3}$ per cent to 40 per cent of the value. It should be stated, however, that the delays incident to foreclosure are much greater here than in Europe, with correspondingly greater accumulations of delinquent interest, taxes and costs, so that our loans are in fact for larger percentages than they appear to be. In some cases European companies have the right to take almost immediate possession after default, the Credit Foncier having to wait but eight days, and the Banco Hipotecario of Spain only two days.

The third limitation established has to do with the amount of bonds which may be issued with a given amount of capital. The surplus is in all cases treated as a separate and special fund, and the usual legal requirements are, that a percentage of the earnings amounting to 10 per cent or 20 per cent be set aside annually until the surplus equals 20 per cent or 25 per cent of the capital of the company. The Credit Foncier of France, and the Prussian Central Boden-Kredit Company, are both limited in their issues to twenty times their capital stock, and this was until recently the generally recognized limit in Germany. Now, however, the General Mortgage Bank law of Germany fixes the limit at fifteen times the capital. Among companies restricted to ten times their capital stock are the Italian companies under the law of 1884, the Swedish Company, the Banco Hipotecario of Mexico, and the greater number of Dutch mortgage companies, though the latter are restricted to

ten times the *subscribed* capital, only a fraction of which is paid in. Norway limits the issues of its mortgage company to eight times, and Denmark its companies to six times their capital. The English and Scotch companies, which loan only outside of Great Britain, follow a different plan and usually limit their bond issues to an amount equal to their subscribed capital, or even to the unpaid portion of it. At first thought this would appear to be more conservative than the continental method of allowing issues up to fifteen or twenty times the capital, but it may well be doubted whether the continental method is not in fact the safer; since with a large volume of business profits are satisfactory from a small difference in interest rates between the bonds and the mortgages securing them, and the temptation is removed of taking risky loans at higher rates of interest in the attempt to earn greater profits through a wider margin of difference in rates, where the volume of business is small. Incidentally to this it may be mentioned that the Credit Foncier, and the Credit Foncier Canadien, are limited by law to a difference in interest rates on their loans and their bonds of $\frac{6}{10}$ of 1 per cent, the Italian companies, and more recently the Italian National Bank, to $\frac{45}{100}$, and the Austrian companies to 1 per cent, thus recognizing the danger of attempting to make large profits out of loans at high rates of interest.

The limitation of the territory in which loans may be made, and the general requirement of annual payments in reduction of the principal of loans, together with a rigid government inspection, furnish additional safeguards, as does also the further requirement that any property taken under foreclosure must be promptly sold, thus preventing a company from speculating for a future possible rise in the value of its foreclosed real estate, and concealing its losses by carrying such foreclosed real estate as an asset at cost, regardless of its real depreciation.

As has been shown, the companies engaged in issuing real estate mortgage securities in Europe are now safeguarded by a body of laws which has gradually grown up on this subject, and by which they are governed in accordance with past experience. In order to insure complete safety to investors, the business of making mortgages and issuing securities against them is one which should everywhere be closely controlled by law, as may be realized from a consideration of the varied elements of risk to be guarded against.

While many of these elements against which the margins on mortgage-loans are to guard are the same in farm loans as in city loans, the problems in farm loans are on the whole much simpler, the quality of the soil, the annual rainfall and transportation facilities being the essential elements to be considered.

In the case of mortgage loans on city property, however, the margin to insure safety must be sufficient to cover the following elements of risk:

- (1) Errors in judgment in valuing property.
- (2) The lowering of real estate values by general commercial and financial depressions.
- (3) Loss of value by changes in the internal structure of cities.
- (4) Depreciation of buildings.
- (5) Accumulations of delinquent interests, taxes and costs during foreclosure.
- (6) Loss of value through disposing of property at forced sale.

Taking these up in order we may consider—First: Errors of judgment in appraising the value of property. Since each piece of real estate stands by itself, there can never be a "market value" for it in the sense that there is for bonds or shares of stock, where each sale is representative of the value of the entire issue. The valuation of real estate must rest on opinion only, and while it may be comparatively easy for an expert with full information to value real estate correctly in an active market, in a market where transactions are few the difficulty is very great. In order to have appraisals of any value, a real estate expert must have at his command a large fund of information in regard to sales of property, rentals of property, and the cost of construction of buildings, since these are indispensable to a proper valuation of the real estate. It is not always easy to obtain information in regard to the consideration for sales, especially in New York City, where the practice is growing of setting out a nominal consideration of one dollar in deeds conveying property. The insertion in deeds of fictitious considerations must also be guarded against, such considerations being sometimes placed at a figure above the selling price, in the hope of giving the property a fictitiously high value, and less frequently at a figure below the actual selling price, in the hope of obtaining a lower assessment for purposes of taxation. The selling price of property is ordinarily

based on the rental of the property, which is the source of its value, but this is modified by the prospect of the future rental of the property. The ordinary method of appraisal of improved property is to add to the estimated land value the present cost of the buildings, with an allowance for age and depreciation. The aggregate of these values should always be checked wherever possible by capitalizing the net rentals of the property, after deducting expenses of all kinds, to find if the building's commercial value is equal to its structural value. Wherever a building is misplaced or badly designed, loss of income over a period of years is a sure result; and examples could be given of many expensive buildings, the cost of which has been entirely thrown away, as is shown by the fact that the net rentals produced by them have been less than those produced by adjacent properties improved with buildings of trifling cost. The structural value of the improvements, considered by itself, is therefore an entirely unsafe guide in such cases.

On the other hand, to rely on the amount of the net rentals without considering the proper rate capitalization would be unsafe, since different classes of property are capitalized on a different interest basis. For example, a retail store property rented on a long lease to an entirely responsible tenant might be capitalized on a basis of 5 per cent net return, while a tenement house with a large number of tenants and corresponding vacancies and difficulties of collection would be capitalized at a considerably higher rate.

Second: Mortgage-loans ordinarily cover so long a term of years that general financial and commercial depressions during the life of the loans cannot be foreseen, and loans should have margin enough to cover shrinkage of value due to this cause. A period of general industrial depression has a powerfully depressing effect on real estate, but this effect varies greatly on different classes of property. When a mortgage loan is made for a term of years, if the borrower pays his interest and complies with the covenants of the mortgage in regard to taxes, insurance, etc., the principal of the loan cannot be called, nor can additional security be called for, no matter what the decline in the value of the property mortgaged may be. A great distinction is thus apparent between mortgage loans and ordinary banks loans; and when a loan is made for the usual term of five years, it should be borne in mind that the property, to furnish adequate security, should at all times during the five-

year period show a comfortable margin above the amount of the loan. We are familiar with the recurrence of panics every twenty years with intermediate depressions of less violence at ten-year periods. The effect on real estate of these greater and lesser panics is, however, not directly commensurate with the financial and commercial disturbance which they cause. A reason for this is probably to be found in the fact that the growth of population in American cities has, ever since the foundation of our government, been conspicuously greater in the alternate decades coinciding with the lesser or intermediate panics. The effect of this has been to offset the effect of intermediate depressions, as far as city real estate is concerned, because the abnormal growth of city population has coincided with that general period; while the relatively slow growth of cities during the decades coincident with the greater panics aggravates the depression of real estate following these panics. During the period of depression following a great panic individuals of every community are forced to restrict their expenditures to the most necessary objects, and the result of this is that the classes of property within a city which maintain their value best are the two indispensable classes of ordinary business and ordinary residence. All properties devoted to special uses, such as theatres, clubs, hotels, churches, etc., as well as factories and warehouses especially suited to a single line of business, suffer severely. During such a period, also, all properties which, on account of the growth or movement of a city, have a value based on expectations of higher rentals in the future are greatly depreciated, since the element of value based on future expectations is largely eliminated. This depreciation applies especially to suburban land, or that at the circumference of a city which is just coming into use, and is aggravated if the growth of a section has been artificially stimulated by capitalistic influences. The difficulty of valuing property, during a period of depression, is greatly increased just at the time when, through falling rentals and values, it is most necessary to be careful in making mortgage-loans. This arises partly because the number of real estate transactions is greatly reduced and information from this source is thus largely cut off, since no property owner will sell under such conditions except through necessity; and also because of the difficulty of forecasting future rentals where vacancies exist, it being a hard matter to judge whether these are to be temporary

or long continued. To avoid the difficulty which arises from a lack of information about sales, the most feasible method is to prepare a scale of relative values for a city, so that a few real estate transactions in different localities, will tend to show a drift of values, just as an inspection of the daily fluctuations of a half dozen prominent stocks tends to show the drift of fluctuations for the whole list of securities.

A further effect of a depression on values on different kinds of property, not usually given sufficient consideration, is the great difference which a reduction in the gross rentals of property makes in the net rentals where the expenses of the property are heavy, as contrasted with the slight effect which such a drop in gross rentals has where the expenses of a property are light. This is readily shown by contrasting a modern office building, which normally has expenses amounting to about 50 per cent of its gross rentals, these expenses including not only taxes and insurance, but heat, light, elevator service, janitor service, etc., with a store building of moderate height where the expenses do not amount to over 15 per cent of the gross rentals, the owner having no expenses except taxes and insurance. If we assume a drop in gross rentals amounting to 30 per cent, the drop in net rentals of the office building will be 60 per cent, while the drop in net rentals of the store building amounts to only about 35 per cent. Since values follow rentals, the stability of value of a property that is less expensive to operate tends always to be greater than that of a property which is more expensive to operate, and careful lenders are therefore disposed to exercise the utmost caution in loaning on large buildings, such as office buildings, hotels and apartments, the expenses of which are heavy.

Third: Loss of value through changes in the internal structure of a city. There is always going on in a city a movement of the retail stores in the direction of the best residence district, this being an effort on the part of the storekeepers to approach as closely as possible to their customers. As this district moves forward it leaves a vacuum behind it, which is filled later by wholesale or other uses which are inferior from a rental standpoint. Unless the growth of a city is so rapid as to make its wholesale property worth as much as retail property was a few years before, there will be an actual drop in the value of the property so replaced by wholesale; and this has commonly occurred. Where there has been

a change of axis of the main retail business streets of a city, there has always occurred a shrinkage of the values created by an anticipated growth of the business district in the line of its original direction. Many examples are to be found in American cities of the best retail business streets being parallel to a lake or river front during the growth of a city up to a population of perhaps 50,000, while after that point in population has been passed, the concentration of the best residence district at a distance from the water front has drawn business out towards this residence district, on lines at right angles to the waterfront and to the original business streets. As regards wholesale and warehouse property, the chief danger to be guarded against arises through changes in the location of transportation terminals. The natural tendency of wholesale property is to place itself between its transportation facilities and the best retail business district, so that it may at the same time be able to handle its goods cheaply and yet be in a location convenient for its customers. Where the wholesale business of a city grew up through river transportation, it is noticeable that of late years the predominance of railroads has been so great as to withdraw wholesale business very largely from locations occupied by it for half a century, with an increase of value near the railroad terminals and a corresponding decrease of value near the wharves.

In the case of residence property, purely social reasons are the predominant ones in establishing high values, and property of this character is for this reason liable to depreciation through changes of fashion. Changes of transportation are also of great importance in determining residence values, improvements in street-car facilities enabling people of a good social class to live at greater distances from the business center of a city and among pleasant surroundings. The general tendency of our street railway improvements of the last twenty years has been to equalize the value of residence property over considerable areas, and as a result of this to depreciate residence property which is close to business property, while rapidly enhancing the value of well-located property further out. Well-developed residence districts at a distance from the business center of a city have an element of stability in the fact that they are less likely than those closer to the business center to be injured by the encroachment of nuisances. In the term "nuisances" may be included buildings for every kind of utility

except residence, since homogeneity is necessary to the maintenance of value in a residence district.

Fourth: Depreciation of buildings. Mortgage loans are usually made for a long enough term to have the improvements lose appreciably in value from age and usage during the life of a loan, except in cases of the most expensive construction. The loss through depreciation where a building is kept in good repair is estimated at $\frac{1}{2}$ per cent a year for the highest type of fireproof construction, and increases for different classes of buildings to a maximum of 5 per cent a year for cheaply constructed workingmen's cottages. If improvements are not kept in good repair—and it is practically impossible for the mortgagee to compel repairs to be made—the further depreciation from this cause must be added. In addition to the depreciation of buildings through age and usage there frequently occurs a further and more serious depreciation due to changes in style or new methods of construction, or to a change of utility in the location. An example of such a change in style in detached residences has been the abandonment of the mansard roof, once popular throughout the United States, with the result that residences built in this style of architecture depreciated heavily in value, regardless of the soundness of their structural condition. Other changes in fashion affecting residences are the abandonment of narrow hallways and of stained glass and other exterior ornamentation, together with newer and better methods of heating and lighting houses. As regards business property, the erection of modern fireproof buildings frequently takes away a large part of the value of the older buildings with which they compete; and the failure of architects formerly to plan their store buildings with the ground floor frontage all open for the display of goods, has greatly depreciated the value of older buildings, or has led to their reconstruction along modern lines at large expense. A further element of depreciation comes when there is a change of utility in the location. If a residence property has become suitable only for business, the value of the improvements disappears entirely; and the same is true of any such change of utility, subject of course to the possibility of saving a portion of the value of existing improvements through their reconstruction for a new purpose.

Fifth: Accumulations pending and during foreclosure, including the period of redemption, if there is one. The amount loaned

on property, practically speaking, is not the face of the loan, but the amount of the debt with all its accumulations at the time of realizing on the property which has secured the debt. These accumulations are usually made up of delinquent interest, delinquent taxes (with penalties and a high rate of interest), delinquent street improvement taxes (with penalties), court costs, attorneys' fees, repairs after obtaining the property, and a real estate commission for selling which varies from 1 per cent in New York up to 5 per cent in smaller communities. In addition to these, there is a total or partial loss of interest from the time of commencing suit until the property is finally sold. In the aggregate these accumulations vary from 10 per cent of the face of a loan to a maximum of 40 per cent in cases of small loans where the laws are unfavorable to lenders. These variations in the amount of the accumulations attract attention to a comparison of the laws of the various states in regard to mortgage loans. One of the commonest provisions in Western states, and one which adds largely to the accumulation, is the provision of law granting to the mortgagor a period after judgment of foreclosure within which he may redeem the property by paying to the judgment creditor the amount of the judgment with interest. This provision seems to have come into existence in states where mortgage loans on agricultural property predominated, with a view to avoiding the serious effect on farmers of a single crop failure; and since such laws must be uniform in their operation they apply to loans on city property as well. This period of redemption varies from nine months in Nebraska and a year in most of the Rocky Mountain and Pacific Coast states, to eighteen months in Kansas and two years in Alabama. The effect of this law is to prevent outside investors from buying at foreclosure sales, since they cannot be sure that the property will not be redeemed by the mortgagor by payment of the judgment and interest; and also prevents a mortgagee, during the period of redemption, from improving property and obtaining larger rentals, for the same reason. Where, as in a few of the Middle Western states, the mortgagor remains in possession during the period of redemption, the accumulation is much greater, since during this period the mortgagee is entitled to no rental return at all; and a further action at law may become necessary to obtain possession. Other legal features which affect the amount of the accumulations are those which permit inter-

est to be compounded; which permit penalty rates of interest, both on delinquent principal and interest, and large contractual attorneys' fees. Obviously the element of time is the principal one, and, where a mortgage may be foreclosed and the property obtained in a short time, the accumulations will be small. In this respect the laws prevailing in the Southern states appear to be more favorable to lenders than those in any other part of the United States.

Sixth: Loss of value through disposing of property at a forced sale, and through the injury to the property caused by the foreclosure. Though properties seldom have to be bought by the mortgagee at foreclosure sales in Europe, it is still the common rule in the United States, largely owing to defects in our mortgage laws. As has been pointed out, the time necessary to obtain title or sell the property at foreclosure sale in Europe is generally very much less than it is anywhere in the United States, and is generally less in the Eastern and Southern states than in the Western. It is usually in the largest cities only, however, that there is any speculative market furnishing a demand for properties of all kinds, at all times, at a reduction in price from the normal value. Outside of New York City there is practically no auction market for real estate, and in most, though not all, of the smaller cities, properties are sold generally to those who intend to use them personally. Where, therefore, a quick sale is desired, a surprising difference will be found in different communities and on various classes of property; some cities having an active market, which will absorb any good property offered at a price within perhaps 5 per cent to 10 per cent of its full value, while in other cities it is difficult to obtain within 25 per cent of the full value obtainable under favorable circumstances.

These varied elements against which the margins on real estate are to guard, and with respect to which the European laws compel certain safeguards, can be equally guarded against by the mortgage-bond companies in the United States, by the incorporation, in the trust agreement between the issuing company and the trustee for the bondholders, of covenants respecting the character of the mortgages to be deposited, the specific performance of which may be compelled by a suit in equity, in addition to rendering the company liable at law for any breach. This feature of the security for

real estate mortgage bonds is so vital that it may be well to quote in full from the trust agreement of an American mortgage-bond company, the article bearing on the mortgages which may be deposited:

1. That each and every mortgage which it shall at any time assign to and deposit with the trustee under this agreement, shall be a first lien upon improved real estate in a city situated in the United States of America, having a population of not less than 40,000, for an amount not exceeding one-half of the value of the mortgaged property as appraised for the company, except that in cities having a population of not less than 300,000 such mortgage may be for an amount not exceeding three-fifths of the value of the mortgaged property as appraised for the company, and that within the political boundaries of New York City such mortgage may be for an amount not exceeding two-thirds of the value of the mortgaged property as appraised for the company. The term "city" is used throughout this instrument in the economic sense, to designate an urban community, and without reference to its political boundaries.

2. That it will not assign to and deposit with the trustee under this agreement any mortgage on a single building which shall exceed an amount equal to \$2.00 for each inhabitant of the city in which the property is located.

3. That the aggregate unpaid principal amount of all mortgages forming portion of the trust fund upon property in any one city, will not exceed in amount \$2.00 for each inhabitant of such city per \$1,000,000 of the company's bonds issued and outstanding and secured by this agreement.

4. That the aggregate unpaid principal amount of all mortgages forming portion of the trust fund upon property in any one city, shall not exceed in amount twenty per cent of the total amount of the company's bonds issued and outstanding, unless such mortgages are upon property situated within the political boundaries of New York City.

5. That the aggregate unpaid principal of all mortgages forming portion of the trust fund upon property in any city of from 40,000 to 70,000 inhabitants, shall not exceed a total of \$40.00 per inhabitant, and in cities of from 70,000 to 100,000 inhabitants shall not exceed a total of \$50.00 per inhabitant.

6. That no single bond or mortgage shall be assigned to and deposited with the trustee under this agreement which shall exceed in principal amount 10 per cent of the capital and surplus of the company then outstanding.

7. That the appraised value taken as a basis for the mortgage loans is not to exceed the selling value determined by the company by careful investigation. In arriving at this value only the established utility of the property and the earning power under systematic management will be considered.

8. That such appraised value of properties securing bonds and mortgages assigned to and deposited with the trustee under this agreement, shall be in all cases based on two appraisals, one of which shall be made by the company's appraiser in the city where the property is located, and the other shall be made by a representative of the company in the home office, who shall have personal knowledge of values in all the cities in which he makes appraisals. From time to time the board of directors shall issue instructions to the appraisers touching the methods to be employed in fixing the value of properties on which loans are to be made. No mortgage shall be assigned to and deposited with the trustee unless it has been approved by the executive committee of the company. In case any mortgage amounts to \$100,000 or over, a third appraisal shall be obtained, made by an additional appraiser selected by the company.

9. That the bonds and mortgages which it shall assign to and deposit with the trustee under this agreement shall in no case be secured by farm property, unimproved property, undivided interests in property representing less than the entire ownership of the property, leaseholds, or by churches, factories, clubs or theatres.

10. That mortgages on new buildings which are not completed and productive must not form more than one-tenth of the total of mortgages assigned to and deposited with the trustees under this agreement. No building loans shall be made in New York City without a guarantee, either of the completion of the building or of the repurchase of the mortgage by a corporation in good standing competent to take such a contract, nor in other cities without retaining at all times from the moneys to be advanced upon the mortgage an amount which the company shall deem sufficient to entirely complete the building according to the plans and specifications.

11. That no real estate shall be acquired except to avoid losses under foreclosure, or to provide offices for the company's own use. All real estate acquired under foreclosure shall be promptly sold.

12. That fire insurance policies to an amount which the company shall deem sufficient to protect the mortgage in fire insurance companies in good standing shall be obtained by the company and deposited with the trustee.

13. That the time within which an action hereunder or upon any of the coupons or bonds of the company may be commenced, shall be that now established by the laws of the State of New York, namely, twenty years from accrual of such right of action.

14. That so long as any of the company's bonds shall be outstanding, the company agrees that it shall have an annual audit of its books by independent auditors or chartered accountants, to be designated from time to time by the executive committee of the company.

15. That it will from time to time duly pay and discharge all taxes, assessments and governmental charges lawfully imposed upon the trust fund, or upon any part thereof, and all taxes, assessments and governmental charges lawfully imposed upon the interest of the trustee therein; provided, however, that the company shall not be required to pay any such tax, assess-

ment or governmental charge so long as it shall, in good faith, by appropriate legal proceedings contest the validity thereof.

16. That it will do, execute, acknowledge and deliver, or cause to be done, executed, acknowledged and delivered, all and every such further acts, deeds, transfers and assurances for the better assuring, assigning and confirming unto the trustee each and every bond and mortgage which shall at any time be assigned to and deposited with the trustee or intended so to be, as portion of the trust fund, as the trustee shall reasonably require for better accomplishing the provisions and purposes of this agreement, and for better securing the payment of the principal and interest of the bonds issued and outstanding hereunder.

17. That it will not do or perform, nor voluntarily permit to be done or performed, any act or thing by which the security of this agreement and the assignment and deposit of the bonds and mortgages, which shall from time to time form portion of the trust fund, can be in any way or manner impeached or impaired.

18. That it will well and truly at all times fully inform the trustee in writing, with respect to all payments of principal received by the company from or with respect to any bond and mortgage assigned and deposited hereunder, and will give the trustee such additional information touching any of such bonds and mortgages, or the property covered thereby, as the trustee may reasonably require from time to time.

It may be observed that, in addition to the European requirements, this company has obligated itself so to scatter its investments as to introduce an element of insurance against loss through depreciation due to a possible decline of prosperity of any single community, and also that there are important limitations in regard to the size of loans in proportion to the size of the city. In the United States companies are now engaged in issuing real estate mortgage-bonds in New York, Chicago, St. Louis, Cleveland, Louisville and a few other cities, and a company has just been formed for this purpose in San Francisco. In some cases these bonds are issued by trust companies, and in other cases by mortgage-bond companies especially formed for conducting the mortgage business in the European way.

As to the rates of interest which may be obtained on real estate mortgage-bonds, these vary with the changes in interest rates on other classes of high grade securities, but in a general way it may be said that in the United States where mortgage-bonds are as yet a somewhat new type of security, these rates are slightly higher than rates on first-class municipal bonds or railroad bonds, while in

Europe the rates on mortgage-bonds are ordinarily slightly lower than on the same class of railroad or municipal bonds.

Quotations of the issues of different companies and associations show, that, with ordinary conditions in the European money markets, the 4½ per cent bonds sell considerably above par, and the 4 per cent bonds slightly above par, while the 3½ per cent and 3 per cent bonds, except those of the strongest companies, are at a small discount, unless they are issued with a lottery feature consisting of an annual drawing for prizes. These lottery bonds are prohibited in Germany, but are frequently issued in France and Austria, and ordinarily command a high premium regardless of the interest rate they bear.

Allowing for the company's profit, borrowers in Europe usually pay from 3½ per cent to 5 per cent interest on their loans, or an average of somewhat less than 5 per cent with the annual amortization payment included, provided they have good security to offer. The saving in interest to borrowers can be appreciated when we recall that rates in Germany were 10 per cent, in France 7 per cent to 12 per cent, and in Italy from 8 per cent to 12 per cent, just prior to the organization of the mortgage business in those countries. In Spain to-day private lenders frequently obtain from 8 per cent to 10 per cent, as compared with the 5 per cent charged on loans of the Banco Hipotecario with 1½ per cent additional to cover expenses and amortization. In Russia interest rates have always been higher than in the other large countries of Europe, the prevailing rates even before the present disturbances there, having been from 6 per cent to 7½ per cent, while bonds have not been sold at a lower rate than 4½ per cent.

In times of war mortgage-bonds have been found to be more stable in value than any other class of security, even government bonds,—because, though governments may fall, the land remains. At the time of the troubles of 1848 in Germany mortgage-bonds ranged in price between 83 and 96, while government bonds fell to 69, and the shares of the Bank of Prussia to 63. During the Franco-Prussian War the 4 per cent bonds of the Credit Foncier sold at from 92 to 95, a higher figure than the quotation of any subsequent year until 1875, and the bonds of German companies showed a similar strength. In times of commercial panics it has been observed, too, both in Germany and Austria, that these bonds

actually rise in value, the explanation being that in the period of inflation preceding a panic they are largely sold in favor of more speculative investments, while after a panic there is a desire to invest again in the safest securities.

The great advantage of the system of issuing bonds which are secured by mortgages, lies in the convertibility which it gives to mortgage investments. These bonds are quoted and dealt in on all the principal European bourses, Berlin and Paris being the great centers for mortgage-bonds of all countries, with Amsterdam and Hamburg next in importance.

Looking at the whole matter from the economic point of view, it appears that the charge of the companies is small for the services rendered. For this difference in interest rate of about one-half of 1 per cent between the bonds and the mortgages securing them, the investor obtains safety for his principal and interest, promptness in receiving payment, avoids loss of interest between investments, and can invest any amount he may wish at any time. In contrast with the ordinary mortgage-loan, no inspection or appraisal of the property mortgaged is necessary, and the care of maintaining fire insurance policies, taxes and assessments and other matters, is done away with; in addition to which, his investment is readily convertible. The borrower gains in having the business conducted by mortgage companies, because of their large resources and the promptness with which they can act on applications for loans, together with low rates of interest and liberal terms of partial or total prepayment; and, further, through the skill and experience of the companies in avoiding poor loans, owners of real estate are deterred from the waste of badly planned or located buildings, and an economic saving of real value is effected.

In comparing real estate mortgage-bonds with other classes of bonds, there are only two such classes at all comparable in point of safety, namely, municipal and railroad bonds. Undoubtedly one of the principal advantages which real estate has over other forms of security rests in the diversity of its usage. The advantage which railroads enjoy over industrials, in the lower rate of capitalization of their obligations, is largely due to the fact that while any one industry is subject to wide fluctuations in its profits, a railroad, which depends ordinarily on diversified industries, is only affected in a small degree by the failure of a few of the industries

upon which it depends. Real estate of a character suitable for mortgage security enjoys the same advantage, since its value does not depend upon the success of any one tenant or form of business; and it has the further element of stability, as compared with railroad and public service securities, of being purely private property, and as such not subject to the governmental regulation which is lawful in the case of quasi-public corporations. Advantages which real estate bonds possess over municipal bonds in the United States consist of a higher rate of interest, and the existence of tangible security supporting the promise to pay. Advantages which they possess over railroad bonds consist of the safety afforded by the fact that the real estate securing each mortgage is worth from 50 per cent to 200 per cent more than the amount of the mortgage, while many if not most of the newer railroads are bonded for their full cost of construction, their only margin of safety consisting of a capitalization of their possible excess earning power; and also of the fact that the capital stock of the issuing company, paid in cash, is pledged to make good any losses occurring through the mortgages.

In conclusion, it may be stated that where real estate bonds are properly safeguarded by law they furnish an attractive security of a high type, by combining absolute safety of the principal with a satisfactory rate of interest, and easy convertibility.

INDUSTRIAL BONDS AS AN INVESTMENT

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Some five years ago, in an article that was later published in the *Yale Review*, I went into a rather thorough discussion of the "industrial bond." In that paper I proved—to my own satisfaction, at least—that the industrial bond was a well-secured and attractive investment, and that the earning power behind it was greater than that behind the railroad or other corporation bond. Theoretically I still believe this to be true, and I shall presently present comparative figures to attest to the accuracy of this belief. But, looking at the matter from the viewpoint of the average investor—and the average investor has no large sums to invest and is not well informed in financial matters—the matter presents itself in a different aspect.

The first question the average investor asks about a bond is, "Is it safe?" The answer to this question in the case of the industrial bond involves more considerations than perhaps any other form of security. The earning power or the ability to pay the interest and, in due course of time, the principal must be considered in the industrial as well as in any other form of bond. But having satisfied himself as to this feature in the municipal bond, in the railroad bond and, in general, in the public utility bond, the investor need go no further. He can then buy the bond without misgivings. But in considering the purchase of an industrial bond the problem is different. The company issuing the bonds may be earning each year

- two or three times its fixed charges, that is, it may be making enough money to pay all the expenses of operation and management, the taxes, and insurance, enough to write off bad and doubtful accounts, to set aside a generous amount for depreciation, and to have left a balance sufficient to pay interest on its bonds two or even three times over.

Such a showing should surely satisfy the most cautious investor, could he be assured of the continued prosperity of the company, and be certain of a continued demand for its products. But wait. May not some other industrial company discover a better process for manufacturing these same goods, or enjoy some advantage in econo-

mies of operation, favorable railroad rates, something or other, whereby it can undersell or produce a better article? The automobile companies throughout the country are reported to be making money very rapidly (the 1905 census showed an aggregate output of 21,000 machines worth over twenty-six millions) and yet a twenty-five-year bond on an automobile plant could scarcely be called an investment of the most conservative nature. The automobile industry is too new, too unsettled, and the disastrous slump in the bicycle business is still too vivid in many minds. In 1900, bicycles to the value of twenty-two millions were manufactured in this country; in 1905, this output dropped to three and one-half millions. Bicycle bonds are very unpopular now.

It is this consideration, *i. e.*, the uncertainty of the future, that prevents so many of our industrial bonds from being desirable investments. For it must always be remembered that a stockholder is a partner while a bondholder is a creditor. In a new venture the stockholder may look for large and dazzling returns, but the bondholder can never hope for more than a certain fixed rate of interest on his money, no matter what success the company may win. Should failure result, both lose, though the bonds usually bring their holder something from the sale of the plant, machinery, etc. In popular parlance, the bondholder is "holding the bag" for the stockholder. This is the reason that it is difficult to float bonds on a new and untried industry. After actual results have been demonstrated it is easier for the company to borrow money. Sometimes this difficulty is avoided by giving to the bondholder a stock bonus, or gift, this bonus being anywhere from 10 to 100 per cent. So the investor who purchases \$10,000 of bonds is given \$1,000 to \$10,000 of stock, the amount varying with the needs of the company and the shrewdness of the investor. This is, of course, treasury stock and costs the company nothing, but *presto chango*, the creditor is now also a stockholder and a partner and can share in the fat dividends that always look so alluring and so often prove a mirage.

It is the part of wisdom to be guided by the advice and the experience of others. In many states, and in nearly all the eastern states, the legislators have devised certain rules and restrictions governing the investments of savings banks and trust funds. The savings bank is pre-eminently the depository of the man with limited

means, and should be safeguarded with care and forethought. With amazing unanimity the different states have passed laws permitting the purchase of government and state bonds, municipal bonds of certain cities (with limits as to population and indebtedness), first mortgage bonds of dividend-paying railroads—but not of industrial bonds. The only eastern states that look with a kindly eye on industrial bonds are Maine and New Hampshire, and they frown on companies not doing business in the state.

The Maine law limits investments of this character to the bonds of those companies "incorporated under the authority of this state, and *actually conducting* in this state the business for which said corporation was created, which are earning and paying a regular dividend of not less than 5 per cent a year." This is clearly a provision to foster home industries. The New Hampshire law also limits savings banks investments in industrials to the bonds of New Hampshire companies, adding the provision that such company's "net indebtedness at the time of such investment does not exceed its capital stock actually paid in and remaining unimpaired."

Massachusetts, New York, Vermont, Connecticut, New Jersey and Pennsylvania refuse to countenance industrial bond investments for their savings banks. The western states in general make no restrictions of any kind, leaving the decision as to what constitutes a safe investment to the judgment of the bank officials. Such states as do legislate on this subject, as Ohio, Indiana, Iowa, Minnesota, Missouri, Nebraska and Wisconsin, bar out the industrial bond. Michigan permits her savings banks to invest in first mortgage steamship bonds, under very carefully drawn provisions. The steamer must be steel, the mortgage must not exceed half the actual cash cost, there must be an ample sinking fund, and full insurance must always be carried. This is again an effort to build up and encourage local industries.

The prospective purchaser of an industrial bond might well adopt some of these rules for his own guidance. He should make sure that the company is not a new one; that it shows net earnings for the past five years equal to double the interest charges; that the capital *actually paid in* is not smaller than the bonded debt; that the character of the company is such as to preclude the probability of a sudden decrease in the demand for its product and that the men in control of the company are men of good repute as to ability

and honesty. If he insists on these five requirements he can invest his money with reasonable certainty of an assured income and the return of his principal. It is possible that, even after these precautions, he may suffer a loss, for the *absolutely* safe investment is yet to be discovered. But he will have a reasonably safe investment.

A discussion of industrial bonds would be of little value if it were limited merely to pointing out a few simple "dons" for the investor. The subject is very interesting to the student and offers many opportunities for investigation and the collection of statistics. Our American industries are so vast, so widely distributed in so many different fields and phases of activity, so different one from another, that it is difficult to make generalizations about them. A fairly complete list of the kinds of industrial companies would take up nearly all of this article. The United States Census Bureau, in Bulletin Number 57, issued by the Department of Commerce and Labor, "Census of Manufactures, 1905," gives a list of 339 classes of industries, and some of these might be subdivided. In size they range from the colossal "United States Steel Corporation," the billion dollar steel trust, with annual gross earnings of five hundred million dollars and upwards and a bonded debt of a like amount, to the village tannery or the crossroad sawmill. So, therefore, when one speaks of industrial companies and industrial bonds, one must take into account the large and the small, the good and the bad. An excellent idea of this diversity of American industries may be obtained by the following summary (taken from Bulletin No. 57):

	Number of Establishments.	Capital Invested.	Value of Products.
Food and kindred products.....	45,790	\$1,173,151,276	\$2,845,234,900
Textiles	17,042	1,744,169,234	2,147,441,418
Iron and steel	14,239	2,331,498,157	2,176,739,726
Lumber	32,726	1,013,827,138	1,223,730,336
Leather	4,945	440,777,194	705,747,470
Paper and printing	30,787	798,758,312	857,112,256
Liquors and beverages	6,381	659,547,620	501,266,605
Chemicals	9,680	1,504,728,510	1,031,965,263
Clay, glass and stone products.....	10,775	553,846,682	391,230,442
Metals and metal products	6,310	508,340,758	922,262,456
Tobacco	16,828	323,983,501	331,117,681
Vehicles for land transportation...	7,285	447,697,020	643,924,442
Shipbuilding	1,007	121,623,700	82,769,239
Miscellaneous industries	12,377	974,316,571	941,604,873
Totals	216,262	\$12,686,265,673	\$14,802,147,087
	(377)		

These figures are for "establishments conducted under what is known as the factory system, thus excluding the neighborhood industries and hand trades." This distinction omits 317,507 establishments, but they are all small, as their aggregate capital is only \$1,185,769,698, or less than \$4,000 per establishment. Exaggerated statements are often made as to the amounts of liquors and beverages consumed in this country. This table shows that the total value of liquors, beverages and tobacco produced in this country in a year is far less than that of chemicals and only five-sevenths that of leather—a minor industry.

The rapid growth of American industries is clearly shown in the statistics of the Census Bureau. The following figures are taken from the Census of Manufactures for 1905 and cover all industries in the United States:

	Number of Establishments.	Capital Invested.	Cost of Material Used.	Value of Products.
1905	533,769	\$13,872,035,371	\$9,497,619,851	\$16,866,706,985
1900	512,254	9,817,434,799	7,345,413,651	13,004,400,143
1890	355,415	6,525,156,486	5,162,044,076	9,372,437,823
1880	253,852	2,790,272,606	3,396,823,549	5,369,579,191
1870	252,148	2,118,208,769	2,488,427,242	4,232,325,442
1860	140,433	1,009,855,715	1,031,605,092	1,855,861,676
1850	123,025	533,245,351	555,123,822	1,019,106,616

These figures are worth a little study. In these last fifty-five years of American history, the number of industrial plants or separate establishments increased not quite five times, yet the amount of capital invested has become over twenty-seven times that of 1850—a clear indication of the combination and consolidation that has been so prevalent. A half century ago the "captains of industry," with half a billion dollars to do business on, turned out products valued at twice their cost in the raw, making a gross profit of 100 per cent. Nowadays, with nearly fourteen billion dollars invested the gross margin of profit is only seven billions, or 50 per cent. In other words, the gross profits have been cut in two. But by economies in management, utilization of by-products, and the systematization of every branch of operation, the net profits have, if anything, been increased.

Definite figures on this point would be interesting. One can tell almost to a penny how much the railroads earned last year, but

with the industrials it is practically impossible. I have made the following compilation from this same census report:

Salaries	\$609,200,251
Wages	3,014,389,372
Miscellaneous expenses	1,651,603,535
Cost of material used	9,497,619,851
Cost of products	\$14,772,813,009
Value of products	16,866,706,985
Profit	\$2,093,893,976

This would show a profit of 15 per cent on the capital invested, but as Mr. S. N. D. North, the Director of the Census, pointed out to me, the statistics take "no cognizance of the depreciation of plant, the expenses incident to the sale of products, the interest on capital invested, the losses due to bad debts and reverses in general, and these are all very important elements in the accounts." Still, 15 per cent would cover all these items, pay interest on the bonds and leave a very comfortable margin for the stockholders.

In the opening paragraph of this article I made the statement that it was my opinion that the earning power behind the corporation bond was greater than that behind the railroad or other corporation bond. The following table, obtained from "Moody's Manual of Railroads and Corporation Securities," for the year 1907, throws some light on this point:

	Number of Companies.	Stocks and Bonds Outstanding.	Total Capitalization (par value).
Steam Railroads.....	1,410 companies (222,013 miles of track).	\$5,270,004,040 * 8,028,552,806 †	\$13,908,456,846
Electric Railroads.....	1,100 companies (30,824 miles of track).	2,105,172,000 * 2,227,590,000 †	4,422,764,000
Gas, Electric Light, and other Public Utility Companies.	1,654 companies.	.....	3,478,084,000
Industrial Companies.....	1,466 companies.	7,585,340,000 * 2,264,493,000 †	9,840,833,000
			\$31,659,137,846

* Capital stock. † Bonded debt.

Now it should be noted that the steam railroads of the country have bonded themselves to the amount of eight and one-half billions,

while their entire capital stock is not much over five billions. The industrials show a capitalization of seven and one-half billions, while their bonded debt is less than half that of the railroads. Of course, it is easier to pay interest on two and a quarter billion of bonds than on five and a quarter billions, and the industrial bond (as a whole) is just that much stronger.

If the figures given for the capital stock represented the actual cash paid in, all that remains would be to add Q. E. D. For the industrials need only to earn $1\frac{1}{2}$ per cent net on their capital stock to pay 5 per cent interest on their bonds, while the railroads need $8\frac{1}{2}$ per cent to pay the same rate. And he must be pessimistic, indeed, who would say that the industrial companies of the United States cannot earn $1\frac{1}{2}$ per cent.

The statistics of the census show different figures, but they seem to prove the same thing. After elaborate calculations covering many months, a special department of the census arrived at a commercial valuation of all the railways operating property in the United States of \$11,244,852,000. This includes "terminal properties, ferries, bridges and the like used but not owned by railway corporations," and omits property owned but not used in the business of transportation. These figures would, therefore, be large for the actual value of the railroads themselves. But, as we have seen, the Census Bureau shows \$13,872,035,371 for capital actually invested in industrial establishments, or an excess of two billion over the railroads.

The census presents no figures on the stock and bonded capitalization of the industrials, nor has the Census Bureau ever attempted to collect such statistics except at the census of 1900, when this information was collected for industrial combinations or trusts. At that time there was found a total capitalization of slightly over \$3,000,000,000, with a total of only \$216,000,000 of bonds issued, or about 7 per cent. This small percentage shows that industrial bonds were not in favor in 1900, and that the companies were financed by stock issues rather than by bond flotations. In fact, the industrial bond is rather a new thing, as the first issue that I can find was just forty years ago, in 1867, when the Lehigh Coal and Navigation Company put out an issue of 6 per cent first mortgage gold bonds. The next issue seems to be fifteen years later. Definite information on this point is difficult to obtain, but

it is safe to assert that very few industrial bonds were issued more than twenty-five years ago. Of late years bond flotations have become more and more common, and more and more popular with the investor.

The following table of bond and stock listings, taken from the "Financial Review" for 1907 published by the *Commercial and Financial Chronicle*, shows this clearly:

Listings on New York Stock Exchange

BONDS	
1906	\$303,112,000
1905	569,079,000
1904	429,810,500
1903	191,515,050
1902	197,516,313
1901	220,171,700
1900	147,678,597
1899	156,304,760
1898	245,219,480
1897	87,720,502
	<hr/>
	\$2,548,127,902
STOCKS	
1906	\$237,479,600
1905	125,123,300
1904	120,635,050
1903	172,944,200
1902	251,069,400
1901	429,537,450
1900	296,550,572
1899	311,420,285
1898	69,754,130
1897	53,275,671
	<hr/>
	\$2,067,789,658

This shows that in the last five years there were listed bonds to the amount of nearly double the amount of stocks. These figures include both railroad and industrials, and hence do not bear directly upon the matter in hand, save to show the growing custom of meeting capital needs by the floating of bonds rather than by the issuance of stock. An interesting reason sometimes given for this

is that the financiers who control the railroads and the great industrial corporations are fearful of increasing the number of their stockholders. For example, a man can control a million dollar corporation by owning \$501,000 of stock; now suppose that corporation needs additional capital for improvements or the extension of its business to the amount of an additional million. If the money is raised by stock issue Mr. Capitalist is forced to go down into his pocket for another half million to keep control, but if the corporation can raise a million by selling its bonds, he can keep his control without further outlay. Wall Street remembers only too well the coup by which Mr. John W. Gates secured control of Louisville and Nashville, and more recently how Mr. Stuyvesant Fish was forced out of the presidency of the Illinois Central, and it is bent on keeping control, represented by the actual certificates, tucked away in its strong boxes.

This is one reason, of course, but the real reason is the broadening of the bond market, the more favorable interest rates and the wonderful absorptive powers our American investors are showing. But to go back to the relative earning power behind the railway and the industrial bond, there is clearly a difference of two billions of cash capital in favor of the industrials. As railroad bonds easily aggregate four times the total of industrial bonds, then the railways must earn four times as much as the industrials to pay the annual interest charges. As to which earn the most, railways or industrials, I have never seen any estimate. With a favorable tariff and almost complete monopoly in some lines of industry on one hand, and rate regulation and threatened government control on the other, it would seem fair to suppose that our industries make as much money as our railways. And with a bonded debt only one-quarter as large, the margin of safety seems to be all in favor of the industrial bonds.

It must not be lost sight of that this discussion is theoretical and not concrete; that the investor is not considering the purchase of all the industrial bonds, as against all the railroad bonds. What he does consider is a few bonds of a particular issue on a particular industry, and he must be guided by special rather than by general considerations. And while as a whole the industrials of the United States are to be compared favorably with the railroads as regards extent and earning capacity, still the fact remains, that individual

investments in railroad bonds are much less apt to be disturbed than individual investments in industrial bonds, for the reasons already pointed out. An industrial plant is usually limited to one location and makes one product; a railroad connects and supplies hundreds of localities and carries hundreds of products. Conditions which would vitally affect the industrial are of passing importance to the railroad. Similarly the holder of a municipal bond is spared many worries, which must beset the mind of the industrial bondholder, for the faith and credit of a city and all its resources are pledged to pay its bonds, and it is an old saying that "There's nothing certain save death and taxes." A property owner must pay his taxes and the taxes pay the interest on the city's bonds.

The industrial bond as an investment is attractive in the high rate of interest usually offered and the great earning powers often shown behind it, but its purchase requires care and investigation beyond that of almost any other bond. The industrial bond is young and already occupies an important place in the investment world. As time goes on, as industrial conditions become less liable to change, the American investor will more and more turn to industrial bonds as an attractive investment.

THE PHYSICAL CONDITION OF A MUNICIPALITY ISSUING BONDS

BY HARRY E. WEIL,
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In the purchase of municipal bonds, the dealer should be personally acquainted, and familiar in every way, with the issuing municipality. By this is meant that no dealer should purchase an issue of municipal bonds without having first sent a representative to make a personal investigation of the municipality desiring to negotiate its securities. The aforesaid precaution is absolutely necessary in order that the dealer may be in a position fully to protect the interest of his clients, and also to inform them on every point regarding the investment he offers; for, it must be understood that the legitimate bond house purchases these securities for its own account.

The representative who makes this investigation should be one whose personality includes great intuitive power; for, possessing this quality, he will, within the course of a very few hours after arriving at his destination, be able to determine what should be considered the salient features of the physical condition of that particular municipality. Webster tells us "intuition" is "immediate knowledge as to perception." He also defines "intuitive" as "perceived by the mind immediately." Therefore, if the layman, or even one experienced in the handling of municipal investment securities, will fully consider the meaning of the words "intuition" and "intuitive," he will understand why this quality is the primary essential for one who undertakes to determine the physical condition of a municipality.

For the benefit of those who are perhaps unfamiliar with the points most considered by those experienced in the purchase of municipal investments, the following information, in as concise form as possible, is given:

Before a representative is sent to make an investigation, the territory in which the municipality is located is taken into consideration by the intending purchaser, the chief reason for this being that the investing public of this country show great partiality with

regard to location, when contemplating the purchase of municipal securities, showing preference usually for a municipality which has been settled for a long period. In other words, they do not care for the securities (unless they can be had at a very reasonable price) issued by what is termed "the newer sections." To this may be added, that a territory which receives a sudden "boom" and shows immense progress in the way of population and new industries, within a short time, is also regarded in some disfavor; at least until the municipality shows that its sudden growth is due not to a "boom," but to the natural resources which the territory can offer. The majority of securities issued by Southern municipalities are also in less favor than those of the Northern territory. This must be considered when a dealer has under advisement the purchase of Southern municipals. The readers of this article who are experienced investors, will know from dealings they have had, that there is quite a difference in the selling price of Southern and Northern bonds.

The above is due to several reasons, one of which is that during and after the war it became necessary for a number of Southern municipalities to default in their obligations. This was without doubt due to the devastation caused by the strife between the North and South, which gave opportunity to unprincipled politicians, placed in office by the federal government under military law, to cause the municipalities to create indebtedness for which they received very little or no return. Another reason is that a great many investors take into consideration that almost half of the population of the South is composed of negroes, a class of citizens which they do not consider so intelligent and thrifty as the Caucasian race or for that matter, as other nationalities. In this connection, however, the writer wishes to say, that his ideas, formed from active experience in the municipal bond business, do not coincide with those of the investing public who may have objections from the standpoint of safety, to placing their surplus funds in Southern municipal investments. The main reason for this conclusion is that the laws under which Southern municipals are now issued are really better than those in force in the Northern states. This is easily explained by the fact that, after the war, nearly all Southern states revised their laws governing the issuance of public securities, and in adopting new laws took the good

features of those existing in the North and combined them into a constitution for their respective states, which, when adopted, gave better protection both to the investor and to the citizens of the issuing municipality.

Furthermore, during the last twenty years the people of the South have awakened to the fact, that the only way they can progress and equal Northern business methods is by "putting their shoulders to the wheel," and interesting capital to develop the many resources which the South possesses and is in a position to offer to the rest of the world.

Great advancement has also been made in the South toward using the negro race to the best possible advantage for the development of the natural resources. While this question, however, still needs a great deal of thrashing out before it will be settled to the satisfaction of the South, the North and the colored race itself; yet, as some of the best men in this country are devoting themselves to the task, a solution will no doubt be secured at an early date. Therefore considering the great amount of capital which is now being invested in the South, and with a satisfactory adjustment of the question mentioned above, the Southern municipal securities should, within a very few years, rank in market value with those of the North. It can be said, that the Southerner, as a rule, places great stress upon a debt incurred and makes every effort possible to discharge it, because of the honor which he feels is involved.

After coming to some conclusion regarding the territorial merits of a security and before the representative leaves to make his investigation, the intending purchaser takes into consideration such items as the financial condition of the city or county, the character of the citizens, the progressiveness shown in building up the municipality, railroad and water facilities, ownership of public utilities, and the possibilities of the municipality in the future. All this is ascertained so far as possible through records and statistics, such as are on file in a well-conducted investment dealer's office. The opinions formed regarding existing conditions before the representative leaves, are then placed in his charge for verification upon arrival at his destination.

The financial condition of the municipality is determined by the following points:

(1) The proportion of assessment of the property of the community, as against its real value.

(2) The size of its tax duplicate.

(3) The total amount of its indebtedness and of what it consists. If part of this indebtedness is created for special assessment purposes, or the building of water works, electric light plants or school houses, so that the actual net indebtedness (securities issued for improvements which could practically not be realized upon after they are made, such as sewers and streets) is not too large—we will say, not over eight per cent of the assessed valuation—this is usually regarded as a good financial condition and will add considerably to the price which the intending purchaser will pay for the security. To this may be added that very often the constitution of a state prohibits a larger gross indebtedness than five to ten per cent of the assessed valuation. Where this is the case, it also adds to the value of the security.

Being satisfied as to the financial condition of the municipality, the buyer should then consider whether there has been any provision made for the retirement of the indebtedness. After this is settled the population is taken into consideration. This question is rather simple in nature, attention being given chiefly to the number of inhabitants, this being always determined by the federal census, or a certified statement by the officials of the municipality. Attention is also given to the character of the citizens; whether they are of a roving disposition, or of a nationality that usually goes to a place to make homes and help build up the municipality.

The record as to the progress made by the municipality since its incorporation is then duly considered. If it is shown that it has steadily gained in population, that new industries are locating there, that railroads are catering to the town, that there are ample water facilities and the necessary public utilities, this is taken as evidence that the citizens are of a progressive nature and doing everything in their power to further the welfare of the municipality.

The administration from a political standpoint must also receive serious thought, as much harm can be done by not having capable officials in charge of municipal affairs. If a satisfactory conclusion can be reached regarding this, the market value of the security will be enhanced. The railroad and water facilities of a community are of special importance to the bond dealer when considering the

purchase of municipal bonds. If these utilities are ample, the stability and market value of the security will be strengthened.

The question of the ownership of public utilities is now receiving attention from the public in general. As there is a growing tendency towards municipal ownership, the dealer in investments must give this very careful thought, and inquiry should always be made whether the municipality desiring to negotiate a loan, owns its water works, electric light plant, telephone system and street railways. If so, a statement should be obtained from the city officials of how these various utilities are operated, whether they have proven a profitable investment for the taxpayers, or whether it would be more advantageous to have them operated by private corporations. The successful operation of public utilities, when owned by a municipality, depends a great deal upon whether or not they are operated free from politics. It has been found, as a rule, that where politics are not a factor in the operation of public utilities, the municipality can save its citizens money by owning these outright. This is especially true in the case of water works and electric light plants. In the matter of telephones, street railways, etc., municipal ownership is gradually being developed; but, in the opinion of dealers in investment securities, these utilities should not for the present be owned by municipalities. In fact, it has been proven, in the few cases where telephone and street railway facilities are owned by municipalities, that the investment has not been a good one for the taxpayers of the community. If, however, the public utilities are operated in a creditable manner, this must necessarily increase the assets of the municipality, and at the same time enhance the market value of its securities.

As a last consideration in determining the physical condition of a municipality, in addition to the points more fully discussed above, the representative will take note of the condition of streets, sewerage, character of buildings, commercial pursuits, and the imperative need of the municipality to make the improvement, or possess the utility, for which it desires to create an indebtedness. And finally comes the impression he receives of the advantages or inducements the municipality can offer to its inhabitants, or to prospective home seekers, to settle within its limits and help build up a prosperous community.

MUNICIPAL BOND ISSUES EXPLAINED

By HARRY E. WEIL,
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A great deal has been written and said relative to municipal bonds, but the majority of the investing public of to-day do not fully realize what a municipal bond is, and that when they have purchased the security of a municipality, they have an investment that is second to none.

In investing funds the first thing that should be considered by the prospective purchaser is what security is back of the loan. During the last few years a great many corporations have placed on the market bonds and stocks which if fully investigated would be found to have little certainty of absolute payment; yet the public purchases such stocks and bonds, not knowing why, but simply because they see these securities advancing daily. They expect to sell at a profit, thereby getting the return of their principal with satisfactory rate of interest at an early date, but they fail to realize that at least a great shrinkage in market value of this class of security must come sooner or later. This does not mean that there are no corporation bonds or stocks of merit on the market, for there are a great many issues on the market to-day that are sound beyond question. But when an investment is made in a municipal bond the buyer has a security, as hitherto stated, second to none, and one that can be converted into cash or which will be accepted as collateral for a loan at a moment's notice.

A great many municipal bonds have been issued in the past ten or fifteen years, and these have been purchased by the most conservative investors and national and savings banks of this country. This has had a tendency to increase the demand for this class of securities, inasmuch as the laws of a great many states practically compel the banks to invest their funds in nothing but municipal bonds, for the restrictions placed on other classes of securities are such as very few of the public corporations issuing bonds can comply with.

The naming of a municipal bond as the most desirable investment for banks and trust funds was caused through the realization,

by the courts of this country, that there is an absolutely sound foundation back of the loan should a calamity occur. All municipal bonds are issued in accordance with the laws of different states, pledging the full faith, credit, and all the real and personal property, of all the citizens of the municipality, thereby making the security an absolutely safe investment. If the investing public will always purchase a security with a tax duplicate to strengthen it, no fears need be entertained for the safety of their funds.

The Nature of a Municipal Bond

A municipal bond is a form of obligation in which a municipality acknowledges itself indebted, and agrees to pay the bearer at some future time (designated in the bond recital) its face value.

When any city, town, county or school district (the term "municipal" being used to designate any one of the four) has occasion to build water works, sewers, erect court houses, city halls, schools, or make other expenditures for the public good, involving an outlay beyond regular receipts, the law empowers the borrowing of funds, within certain limits, by issuing "promises to pay." These promises the "municipality" pledges itself to meet at some definite future time, with interest, payable usually every six months at some place which is designated as its fiscal agency; the written instrument being known as a municipal bond.

The chief elements of strength in municipal bonds lie in the right of the holder to compel payment and in the imperative duty of the municipality issuing them to meet both principal and interest by levying a tax upon all property within its limits. Such taxes become by law a prior lien to all other claims and must be met before satisfying any other obligations, whether contracted in advance of, or subsequent to, such tax levy. The above is borne out by the repeated decisions of the United States Supreme Court, recognizing the rights of the bondholder, which have resulted in placing municipal bonds next in security to United States Government bonds.

How the Value of Bonds Bought by Investment Bankers is Ascertained

One would naturally think that the only fact to ascertain is the market value of current investments. In this belief the investor who places his surplus funds through the services of a bond expert is

very much in error. Instead of merely figuring the return an investment brings in a specified time, when purchased according to the condition of the financial market, the value of a bond, to be determined accurately, must also be figured from many additional points of view.

The different items from which the value of a bond is derived, and the points always taken into consideration by the bond expert when he computes the bid to be submitted to the municipality offering the securities, must each be considered separately, before he is able to base a bid in accordance with the market. Should he not give every item due thought, the security could not be offered to his clientele and the general investing public, without some flaws being discovered.

Financial Conditions

Any change in the financial market for the worse must also be taken into consideration by the underwriter of an issue, for while municipal bonds do not at any time fluctuate much in value, a change in the financial conditions is apt to make the bond expert stand the loss of the profit counted upon, if it becomes necessary for him to "turn" his securities. Therefore the buyer must be very well informed at all times as to financial conditions, and must also know about where he will find a market for his purchase. The most important conditions to be taken into consideration when an offer for bonds is submitted to a municipality are the following factors:

For instance, if a certain city were to announce an issue of bonds for sale, the first matter the bond expert would consider would be the population taken numerically, the location of the town and character of its people. If the town is located in a good, productive territory, with ample railroad facilities, and shows a progressive spirit, the person intending to submit a bid, would feel that the security of such a municipality would be an absolutely safe one.

After careful study of the territorial situation, the financial condition of the city is to be considered. By this is meant the tax valuation, which comprises all the taxable real and personal property; any assets which the city may have in the way of water works, or electric light plants, and any accumulated sinking fund, that is, "money accumulated in various ways to pay off its indebtedness as

it matures." There is, also, the question whether or not the indebtedness of a municipality is excessive. This cannot be definitely decided, as the fact could be determined only after the various merits of that particular municipality had been taken into consideration. In some places a ten per cent debt would be regarded as excessive; in others, a twenty-five per cent indebtedness would still be considered safe.

Limit of Indebtedness

The bond expert also considers the limit of indebtedness allowed by various state constitutions on municipal investments legal for banks and corporations located therein. For instance, one state in the East places a restriction upon its savings banks, by limiting them to purchasing municipal securities located in certain states only; moreover the municipalities may not have a net indebtedness exceeding five per cent of the assessed valuation, and if it is an obligation of a city, the municipality must have a population of 10,000. Counties are required to have 20,000. By "net indebtedness" the "gross debt" is referred to, less any bonded indebtedness issued for the purpose of water works and the cash accumulated in the sinking fund. A municipality having a percentage of debt and a population which will allow its securities to be sold in markets having restrictions placed on them by the state constitutions will, of course, have a much wider market for its bonds than a municipality, the bond of which cannot be sold in a restricted market. This is a very important point in figuring the values of a security, for the security which is hampered with no conditions can be sold at a much better price.

Earning Rates

After the above facts have been carefully reviewed, the general condition of the country or prevailing earning rates of investments at the time, are to receive consideration. The bond expert, in making up his mind what will be a safe price to bid the municipality for its bonds, so that the bond firm can sell them to the investing public at a profit, will send a representative, trained in the bond business, and in many cases an attorney, to the municipality which intends to issue the security, to make a general inspection of the city, including all the subjects which have been discussed, and

especially the laws of the state under which the bonds offered are issued. If it is found that conditions are not such as the firm thought they were, the representative will discuss the matter with his firm and make a recommendation that they reduce the premium which they will offer for the securities. The men who are sent out to make these investigations are experts in their line, and it is seldom indeed that there is an error in their reports as to the value of a security.

Another feature which must be discussed in determining the value of a bond (when a bid is submitted by a bond house) is the life of an issue and the rate of interest it will bear; in fact, the ground from which the market value of a bond is really based (meaning the premium it will bear) is from the life and rate the security carries. If the bond has a long life, for instance, twenty or thirty years, and bears five per cent interest, the premium on that particular security would be considerable when placed before the public for investment purposes. A great many investors object to paying a high premium on bonds (and this, therefore, must be taken into consideration in figuring), as they cannot see the difference between a security commanding a high premium and one bearing a low premium. Many even say, "We see no reason why we should pay any premium as the municipality issuing the security should pay the bond broker a commission for negotiating the transaction." This would all be very well if there were only one bond house in the business, but when it is argued that there are upwards of a dozen competitors at each offering of bonds by municipalities, and all anxious to secure them, it can be readily seen that the competition for this class of securities is very keen, and that only one, or a previously formed syndicate, can be successful, and that one is the firm or syndicate offering the largest premium.

Method of Bidding

When the price which the firm feels it is safe to bid has been agreed upon, sealed bids for the issue are submitted to the proper officer of the municipality. These bids are opened at a stipulated time and the bonds are awarded to the firm offering the highest premium, in addition to the par value and the interest accrued to date of delivery of the bonds. This award is made if the conditions of the advertisement of sale have been complied with by

the bidder. Should the high bidder not have complied with the conditions in the advertisement, the bonds will generally go to the next higher bidder who bids in conformity with the advertisement.

Delivery

After the award has been made by the proper officials of the municipality, the clerk of the corporation submits to the successful bidder a complete set of transcripts leading up to the issuance of the bonds. These transcripts include every legal step taken by the officials in the issuing of the securities until the time of sale. The transcripts are submitted, by the firm purchasing the securities, to some eminent legal counsel making a specialty of examining into the legality of public securities, and having no interest in a financial way, either in the firm which submits the papers to them, or in the city itself. If the attorneys examining the validity of the bonds give their approving opinion, the bonds are taken up and paid for by the successful bidder. However, about twenty-five per cent of municipal issues which are placed on the market, are generally found to be legally irregular, and the purchaser is consequently unable to conclude the purchase. An eminent attorney's approving opinion on the legality of a block of bonds, adds to their value.

Broker's Commission

When the bonds have been properly issued and paid for by the purchaser, an offering is made by the holder to his clientele and the general public, as an investment for their surplus funds, at a price which will generally allow the bond expert about one per cent for his services. A great many securities, however, are handled at less than the above-named profit and many at more, the profit made depending greatly upon the grade of the security offered.

If the public knew the vast amount of work the bond expert does, the number of people employed to secure correct information and the various systems in use, in order that the investigations may be made properly, and that information may be at hand at all times on old as well as new issues, so that the firm may conduct the business successfully and offer to the investing public investments in which they can safely place surplus funds—no doubt those availing

themselves of the service of the bond firm would wonder how the business could be conducted on the small profit asked over purchase price. All this, however, is obtainable on account of the big demand for the class of securities discussed, which again proves "the high regard in which municipal securities are held, if the same are bought and put upon the market by a firm properly equipped."

THE PROTECTION OF MUNICIPAL BONDS

BY PARK TERRELL,
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A very little investigation of the manner in which municipal bonds are ordinarily issued will reveal a condition wherein the crime of forgery might find its natural domicile. It is not a matter for wonderment that bonds of this class are so frequently forged, but rather that an opportunity so ready and with such large possibilities of easy pecuniary gain should be comparatively neglected by those whose business daily brings them into close touch with the situation.

In providing a corrective for any defective condition it is desirable first to become familiar not only with the actual condition to be remedied but also with the underlying causes which have contributed to the fault. When these are not known, or but imperfectly appreciated, the well-meant labor of those who would afford relief is not only ineffective but tends to bring about a state of greater confusion and also to produce in the public mind an impression that no adequate remedy can be found. It is, however, unnecessary for our purpose to trace the history of the municipal bond from its beginning as a simple written order to be immediately paid out of funds in hand through its various stages of growth as a warrant without fixed maturity bearing interest until paid, to a bond with or without interest coupons attached and becoming due at a stated time. A few points only may be noted.

In 1883 the business of handling municipal bonds had grown to such considerable proportions that many large firms with adequate capital were engaged almost exclusively in buying and selling this class of securities. Since that date the annual output of municipal bonds has increased enormously, and now reaches a total of about half a billion dollars.

The necessity for providing a safe bond was not at first appreciated by municipal officials. Not infrequently bonds that were typewritten, printed or otherwise cheaply prepared would be tendered to purchasers; therefore, in order to obtain bonds which were businesslike in appearance and acceptable to their clients,

dealers found it necessary to furnish the blanks to the municipalities. This procedure eventually became a source of much trouble, for while the honest dealer could, in a measure, protect himself and his clients, those less scrupulous found in the practice an easy way to increase their capital.

Dealers in municipal bonds are justly held in high esteem as men engaged in an honorable business, requiring a capital large in proportion to the returns to be expected from its ordinary transactions. They must also, in order to do business at all, command the respect and confidence of the most cautious and conservative investors, for to such the bulk of municipal bonds are finally sold. When, therefore, men of such high standing yield to temptation and are false to the trust reposed in them, it must make thinking men pause and ask why this business, which should be absolutely free from even liability to suspicion, is not surrounded with such safeguards as to afford practical protection to those engaged in it, and to their clients.

From the first, abuses existed, such as over-issues, duplicates and actual forgeries, beginning in a small way, then increasing with the growth of the business until recently a single individual using the credit of his firm issued forged municipal bonds having an ostensible par value of over a million dollars. An evil of such magnitude naturally attracted public attention, and various attempts have been made by state legislators to surround the issue of bonds with formalities intended to prevent such irregularities as have been mentioned.

The various expedients adopted by dealers and by the various state legislatures, while tending to reduce the chances of the bonds being improperly executed or issued in excess of the amount authorized, however, protect only in part, and even when working together do not constitute an effective plan for the purpose, which should be to provide a bond itself bearing indubitable evidence of its own genuineness, a difficult task, but not impossible of accomplishment.

To meet such difficult conditions, to safeguard the issuing municipality, the dealer, the banker loaning on bonds as collateral, and the investor, against loss through accidental over-issue or subsequent fraudulent duplication, the method of issue must be at once economical, comprehensive, and exact in every detail; and the finished bond must be such that to the careful observer there can

be no doubt of its genuineness. In short, the bond itself should provide its own identification with even more certainty than does a treasury note or bank bill.

For some years the United States Government has safeguarded its bond issues by having the blanks prepared at the Bureau of Engraving and Printing under a checking system which has proved effective against liability to over-issue. Immunity from counterfeiting is secured by the use of a special paper and elaborate engraving, both plates and designs being further protected by heavy penalties attached to their possession or use by unauthorized persons. These expensive and elaborate precautionary measures were not adopted needlessly, but because experience has shown that the most perfect system was required to discourage would-be counterfeitors.

Several of the larger cities have attempted to meet the emergency by providing steel plates engraved by bank note companies, from which their bonds are printed. The smaller municipalities, however, are unable to afford even this partial remedy because of the expense attending not only the original engraving, but the changes in the text of the bonds necessary to provide for successive issues. As it is evident that the most careful engraving will not of itself be sufficient and that mere registration by state officials cannot prevent forgery, the remedy must lie in a complete system of issue providing for exacting supervision of every detail, all under the direction of a responsible and permanent corporation, which will affix to each bond an absolute guarantee of its genuineness.

In the issue of corporation bonds, it has long been the custom to require that identification be furnished by means of a certificate endorsed on each bond signed by a trustee (usually a trust company) before it becomes a valid obligation of the issuing corporation, but as the certificate also may be forged the evidence of genuineness is not so sufficiently conclusive that the purchaser does not still have to depend on the word of the vendor for his assurance that the bond is what it purports to be.

As in the case of corporation bonds, a responsible and conservative trust company would seem to be the proper sponsor for municipal obligations, and as the trust company must first assure itself against accidents it must control all the details of manufacture from the time the paper leaves the vat, through all the various

processes, until the bonds are sealed, signed, attested by certificate and delivered.

The physical protection of the issue should be as perfect as the present state of the several arts employed will permit—thus, the paper should be made from a special formula and bear a distinctive watermark. Provision should be made whereby every sheet of the paper may at all times be accounted for until it is in the form of a completed bond. The engraving used should be of a character most difficult and costly to reproduce, and the plates should be owned by the trust company, which should also own the designs from which the plates were engraved, as otherwise they might be employed for other purposes and their value as a protective feature entirely lost. When the exact number of bonds required has been prepared and they have been executed under the direction of a responsible representative of the trust company who has first ascertained that the parties signing were the proper officers of the municipality, they are ready for the signing of the certificate of genuineness, which should be a full and explicit guarantee of the genuineness of the signatures and the seal attached to the bonds. Affidavits as to the proper execution of the bonds acknowledged by both the officials and the trust company's representative should then be filed for future reference and the bonds delivered.

In the space of this article it would be impossible to give more than a short reference to the conditions which have made a protective method of issue necessary and a brief general statement of the essential features of such a method without going into the almost innumerable details of which the method is composed. The painstaking care and exacting supervision which those details require in order to make the plan effective may also be passed without further mention. Taken as a whole the plan outlined is, under experienced direction, a success, and has been operating long enough to prove its practical value to municipalities desiring to safeguard the interests of the taxpayer and to the more conservative investors who appreciate the security thereby afforded to their investments.

CLASSIFICATION AND DESCRIPTION OF BONDS

BY FREDERICK A. CLEVELAND, PH.D.,
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A comprehensive basis for the classification of bonds is not to be found in the bond lists nor in current market reports. The names and classes thus arranged are for purposes of convenient reference and usually follow the practice of the local exchange. Generally speaking, bonds receive their titles from one or more of the following characteristics: (1) The character of the corporation using them; (2) the purpose of issue; (3) the nature of security given for payment; (4) the terms of payment, and (5) evidence of ownership and transfer. The first of these five characteristics is used as a basis for general classification. That is to say, quotations are usually arranged under the following heads:

- Government—state and national.
- Municipal and county.
- Railroad, express and steamship companies.
- Traction companies.
- Gas, electric light, and water companies.
- Bank and trust companies.
- Investment companies.
- Industrials.
- Mining companies.
- Miscellaneous.

No explanation is needed to an understanding of the significance of these general classifications.

Under the general heads above indicated, each issue, by abbreviation, is given its principal contractual or financial significance. An issue which falls in the general class, "railroads" for example, may be noted as a "unified, sinking fund, joint, or convertible bond." This carries us through the entire range of the classification suggested. The nature of the company places the issue under "railroads"; according to the purpose of the issue it is designated as "unified"; from the nature of the security offered it is called "sinking fund"; having reference to the payor, it is further qualified as "joint"; the terms of payment carry with them the sig-

nificance "convertible." These variances from the general class "railroads" suggest a detailed description of the several kinds of issues under each principle of classification.

Classification According to Purpose of Issue

Among the many varieties of bonds which take their names from the purpose of issue the following may be noted:

Adjustment bonds, bridge bonds, construction bonds, consolidated bonds, car trust bonds, dock and wharf bonds, equipment bonds, extension bonds, founders bonds, ferry bonds, general bonds, improvements bonds, interim bonds, interest bonds, purchase money bonds, refunding bonds, reorganization bonds, revenue bonds, subsidy bonds, terminal bonds, tunnel bonds, temporary bonds, unified bonds.

An *adjustment bond* is an issue of bonds so named for the reason that the funds obtained from the sale thereof enable a company to adjust its finances to its increased financial needs. It is also a term used to characterize an issue for the purpose of adjusting the interests of two or more persons or corporations. These are usually issued as a result of litigation involving a receivership or other interference with the regular use or management of the property. The property itself being considered ample protection to the several rights of parties, and the company not having the funds available with which to settle without further encumbering the enterprise, bonds are issued to consummate the transaction, release the property, and relieve the management from further legal interference.

Bridge bonds are frequently issued by an independent company organized for the purpose indicated. More often, however, this is not the case. In railroad nomenclature, the bridge bond is issued to procure funds for a costly bridge construction in which one or more roads are interested. If a bridge company is separately incorporated for the purpose of holding the title, the bonds are usually secured not only by a lien on the property but also by an individual or joint guarantee.

Construction bonds are issues pending construction to provide the cash with which to purchase materials and pay for labor. They represent the capital cost of construction. In railroad parlance, the term may indicate an intention later to refund by means of another

issue. By a construction company they may be issued pending payment on work in progress, and are in the nature of temporary advances on construction, the evidence of which is a serial issue of notes secured by a lien on the construction.

Car trust bonds are the issues of a company, or trustee, intermediate between the car manufacturer and the railroad company. The manufacturer, wishing to realize the ready cash with which to carry on his further operations, the title to cars desired by a railroad are transferred to the car trustee, who issues to the road a lease or other contract for partial payments; to provide the cash needed by the manufacturer a mortgage on the cars is placed in the hands of a second trustee (usually a trust company) and serial notes or bonds are issued and sold, provisions being made for the periodical payment of the notes by application of money received from the railroad. Usually these notes are in several series, Series "A" being first retired, followed by Series "B," etc., till all are paid and the mortgage is satisfied. Then the intermediary company, having fully paid its obligation to the bondholders and received a release from the trust company of the mortgage, makes an unconditional deed to the railroad for the cars leased or conditionally sold.

Dock and wharf bonds may be issued by several roads having common dock and wharf facilities or by a single road, the purpose being to have a separate and distinct security to offer for new capital with which to build the docks. In such case the dock and wharf property would be owned by a separate company, the stock in which would be held by the parent company.

Equipment bonds are issued for a purpose similar to that of "car trust bonds," the difference being that usually the purchase is made and a direct chattel mortgage is given back as part consideration without the interposition of another vendor or leasing company.

Extension bonds. The qualifying word "extension" has a double significance in bond parlance, the first meaning has reference to an extension of a railroad or other property, as the extension of the main line from one point to another; the second meaning has reference to an extension of time of payment. The latter provision, however, is usually stamped on the original instrument after the contract has been entered into and properly authenticated.

Founders bonds. In England founders shares are sometimes issued to represent the interest of the promoters of a new company. In some American states such an issue is also permissible under the law. Instead of stock, an arrangement may be made for a special bond issue. This is most frequent in industrial companies, where the founder, wishing to retire from business, will make a transfer, taking at par in bonds such portion of the estimated value of the property or the full value as may be agreed on, the corporation issuing to the new proprietors shares. This enables the old proprietor to obtain a regular income from the enterprise founded by him, and the new proprietors to obtain the benefits of any increased value that may accrue from the introduction of new capital or new methods.

Ferry bonds may be issued by a railroad which has a general mortgage on its properties the provisions of which make it a lien on all property subsequently acquired. If the bonds are issued as a part of the consideration for purchase, only the value of the equity inures to the benefit of the general mortgage bondholders. The same result may obtain by the organization of a subsidiary company to hold the title to the ferry properties.

General bonds. The term "general" when used to indicate purpose is similar in its meaning to "consolidated," "blanket" and "unified." More frequently it is used in relation to the character of security afforded.

Improvement bonds need no description, as the name itself suggests the purpose of the issue.

Interim bonds are issued for the purpose of procuring the funds with which to consummate a transaction, and at the same time to preserve the rights of parties during the interim of arranging the details necessary to final adjustment or settlement. The term is also applied to what is later defined as "temporary bonds."

Interest bonds are issued for the purpose of definitely deferring interest payments due and protecting the property or corporation from the consequences of a default. The new contracts amount to an extension of interest payments without operating as a novation of old contract.

Purchase money bonds is a term commonly used as descriptive of the use of issues as part consideration on purchase of properties.

Refunding bonds are issues used for the purpose of exchanging

for or procuring the funds necessary to purchase or make payment on and retire previous issues.

Reorganization bonds are usually issued as a means of settling the rights of the several parties involved in a receivership and as a means of providing the current funds needed for successful reorganization and the surrender of the property to its corporate managers. This name is also given to issues used for purposes of reorganization not involving receiverships.

Revenue bonds is a term most frequently used as descriptive of issues of municipalities sold to the public for the purpose of procuring funds for current use pending the collection of taxes and other revenue. When issued by the English government they are called "exchequer" bonds. "Revenue" is also at times used as a synonym of "income" in describing the character of security for payment.

Subsidy bonds is a phrase having reference to issues of towns, cities, counties and states, as subsidies for railways and other public service companies. The word "subsidy" may also be used in other relations as descriptive of the purpose of issue.

Terminal bonds are frequently issued by subsidiary companies organized to hold the title to terminal properties. The bonds issued for improvement of terminal facilities like "bridge," "dock and wharf" and "ferry" bonds are usually guaranteed by the private company or companies. The reserve for the separate incorporation and issue may be found in the terms of what would constitute underlying mortgages were the terminal bonds issued by the parent company.

Tunnel bonds, aside from the significance which the name itself implies, may have attached to them circumstances and conditions similar to "terminals," "bridge," etc.

The term *temporary bonds* has reference to the character of the stationery on which the bond is printed. Pending the production of engraved or permanent bonds the evidence of the contract may be a typewritten or cheaply-printed document.

Unified bonds are similar in purpose to "consols," viz., to consolidate and unify the various preceding issues. "Unified" bonds often have reference to prospective as well as past capital needs; if, for example, \$25,000,000 of bonds had already been issued under a number of different mortgages and it was estimated that \$25,000,000 more would be needed during the next ten years, the unified

mortgage and bond issue would not only provide for the refunding and consolidation of all previous issues but also for the issue of the bonds needed for further construction or holding purposes, all bondholders thus enjoying equal rights.

Classification of Bonds According to the Character of Security Provided for Payment

From the point of view of the security given for payment, bonds fall into two general classes, viz., (1) unsecured, and (2) secured. The secured bonds may again be divided into two general classes (a) those having personal security and (b) those secured by liens on specific property. These in turn may be sub-divided as follows:

I. Unsecured.

- (a) Government bonds.
- (b) Corporate debentures.

II. Secured.

(a) Personal security.

- 1. Endorsed bonds.
- 2. Guaranteed bonds.
 - (a) Guaranteed as to principal.
 - (b) Guaranteed as to interest.
 - (c) Guaranteed as to both principal and interest.

(b) Lien security.

1. By character of property pledged.

- (a) Real property.
 - 1. Land grant bonds.
 - 2. Real estate bonds.

(b) Personal property.

- 1. Collateral trust bonds.
- 2. Sinking fund bonds.

2. By the character or priority of lien.

- (a) First, second or third mortgage bonds.
- (b) General mortgage bonds.
- (c) Blanket mortgage bonds.
- (d) Consolidated mortgage bonds.
- (e) Income bonds.

- (f) Profit-sharing bonds.
- (g) Dividend bonds.

3. By the character of the holding participation receipts.

Unsecured bonds, sometimes called "plain" bonds, are credit instruments or unconditional contracts for the payment of money, to the holders of which no collateral contract is made, the payment of which is conditioned on default on the original or credit contract. It is commonly thought that what in the market is dominated a bond is secured. This is error. Some of the best bonds dealt in on the exchanges are in the nature of unsecured promises to pay. They are bought and sold on the open credit of the issuer, in the same manner as are one-name commercial papers. Among these are the issues of the federal and state governments, municipalities, county bonds, etc. The Bank of the United States issued unsecured bonds. In this country practically the only form of security given for the bonds of public corporations is a sinking fund. This may be a cumulating security or it may cover the principal from the date of issue. An instance of such secured municipal bond is found in the issues of the city of Chicago, where, at the time the issues were authorized, a tax was levied for the full amount, payable and collectible by instalments over the life of the bond. Among the unsecured private or corporate bonds are the debentures of railroads. The short time loans to railroads are sometimes floated in the form of serial notes. These are nothing more nor less than unsecured short-time bonds.

Endorsed bonds are those the security for which is a common law guaranty. That is, the contract of security is in the nature of a personal guarantee implied and enforceable in law by the act of writing the name of the guarantor upon the back of the instrument. This term is also used of bonds on the back of which is placed words of writing not properly pertaining to it, but which, according to the rules of the exchange may not be delivered except as an endorsed bond, as for example "This is the property of the Mutual Life Insurance Company."

Guaranteed bonds are those the security for which is a written guarantee, either attached to the credit instrument itself or evidenced by a separate writing. The guarantee differs from the endorsement in that the name of the endorser carries with it an

unwritten contract the meaning of which is established by common practice and legal precedent, while the guarantee, being expressed in writing, is strictly construed and enforceable only in accordance with the specific terms of the instrument. These guarantees may be for payment of principal or for the payment of interest or for the payment of both principal and interest in case of default of the payor.

Land grant bonds are issues of railroads, the security for which is a mortgage on the lands granted as subsidies by the state and federal governments. Many of the roads procured a large proportion of the funds used by them in construction by means of land grant bond sales, issuing the stock to the promoters, for the enterprise in organizing the project and procuring the subsidies.

Real estate bonds, in railroad parlance, refers to the issue secured by a mortgage on real property not used in the operation of the road. This designation is also used for the issues of real estate corporations. Some of them are issued by private parties secured by a mortgage on real estate improved by means of the funds obtained or flotation of the issue.

Collateral trust bonds are the issues of a corporation the security for which is a lien on other stocks or bonds, or both, deposited with a trustee, usually a trust company, under an agreement setting forth the conditions of the trust.

Sinking fund bonds are issues the security for which is a fund created by contract, usually a cumulating one in the hands of a trustee.

Prior lien, junior lien, first, second and third mortgage bonds are designations having reference to the priority of the rights of several parties holding a lien or mortgage to property held in trust for the payment of bond credit issues in case of default. A prior mortgage bond is also called an "underlying" bond.

General mortgage, blanket mortgage, consolidated mortgage, bonds, so far as they have reference to the nature of security for payment, signify that issues are secured by a general mortgage on properties. The "general mortgage" bond, however, may be secured by a mortgage on properties which have not previously been made subject to lien. The term "blanket mortgage" is frequently employed to indicate a very inferior lien given to secure a floating debt or other previously unsecured obligation. The "con-

solidated mortgage" is generally used to indicate the security for refunding issues.

An *income bond* is one of a series of issues the security for the interest payment of which is a lien on the net income of the company issuing it, which may be either cumulative or non-cumulative. The principal may be secured or unsecured. If secured, the security is usually a mortgage junior to all other secured issues, but places the obligation for the payment of principal ahead of unsecured creditors. Some income bond issues have been called "participation" bonds.

Profit-sharing bonds and dividend bonds are terms applied to issues, the holders of which, in addition to interest, are entitled to dividend or profit-sharing rights. This is a form of bond that partakes of the advantages of preferred stock, differing from stock in that it is usually secured and does not convey voting power; it differs from the "straight" bond in that it offers an added and speculative inducement to the purchaser. The issue generally carries with it what may be called a "sub-standard" risk.

Participation receipts are receipts issued by the trustee of a bond syndicate on payment of subscriptions, the effect of which is to entitle the holder to a certain participation in the profits of the syndicate or to a certain proportion of the bonds in distribution.

Classification of Bonds According to Terms of Payment and Retirement of Issues

Among classes of bonds which have reference to the contractual rights of parties looking toward payment and retirement of issues are the following:

- I. As to character of payment required.
 1. Gold bonds.
 2. Silver bonds.
 3. Currency bonds.
 4. Legal tender bonds.
- II. As to option of payor.
 1. Redeemable.
 - (a) At specified time.
 - (b) Call.
 2. Irredeemable.

III. As to option of payee.

1. Convertible.
2. Annuity.
3. Endowment.

IV. As to character of payor.

1. Joint.
2. Several.

A gold bond is one by the terms of which the payor contracts to deliver the principal and interest in gold coin of the realm and usually specifies the weight and fineness. This gives to the holder a right to demand and receive the specific kind of money described. The contract is seldom enforced, as it may be settled by offer and acceptance of some other form of money, though more usually settlement is made with a transfer of credit by check or draft.

A silver bond is one in satisfaction of which the holder may demand an agreed amount of silver money of a specified weight and fineness. These bonds are common to countries having a silver monetary standard. To this class belonged the old "sterling" bonds of England. At the present time the provision is usually inserted for the supposed benefit of the payor.

Currency bonds were issued during and immediately after the Civil War. Similar bonds have also been issued by other countries where paper money was made legal tender.

Legal tender bonds are those by the terms of which the payor may have the option of paying in any kind of legal tender money; they give to him the benefit of the cheaper form of currency.

Redeemable bonds are those by the terms of which the payor may pay in a specified manner and at a specified time before maturity, *i. e.*, before the payee has a right to demand payment. Redemption may be at specified times or dates, or it may be "on call." Of the former class were many of the federal government bonds issued during the Civil War. "Call" bonds usually require notice and the payment of a one year's interest or other premium. Many sinking fund bonds are subject to call when a fund of specified amount has accumulated in the hands of a trustee. Redeemable bonds are sometimes called "optional" bonds.

An *irredeemable bond* is one which contains in the contract no option for payment prior to maturity.

Convertible bonds are those by the terms of which the holder has a right to exchange or convert at a given rate into other forms of property. The most usual form of conversion right is one which entitles the holder to obtain common or preferred stock at a pre-determined rate of exchange. This right gives to the bond a certain speculative value aside from its estimated investment value, based on interest rate and security for payment. Oftentimes the conversion rights of bondholders become an important factor in control and in stock manipulation. Another form of "convertible" is issued by real estate corporations entitling the holder to convert into property according to schedule. A "tax bond" is a form of convertible bond, being convertible into payment for taxes.

Annuity and endowment bonds have taken many different forms and characteristics. Of the old English government bonds many were on an annuity basis, which indefinitely postponed the time for payment of principal and gave to the holder a right to income at a specified rate for a period determinable except by subsequent agreement. Some bonds have annuity and endowment options, the endowment feature providing for a definite number of payments of predetermined amount.

Bonds Classified According to Evidence of Ownership and Transfer

Considered from this viewpoint there are three classes, viz., coupon bonds, registered bonds and coupon registered bonds.

Coupon bonds are issues the contracts for payment of interest on which is evidenced by separate coupons or contracts for payment, which fall due consecutively on the interest-paying dates. The coupons may be detached and constitute complete promissory notes in themselves, payable to bearer. The coupons are usually written on small sections of a sheet of paper attached to the principal obligation and as they mature are clipped off and presented for payment. They are frequently presented for payment through a bank as a check or draft would be.

Registered bonds are credit instruments the interest obligation in which is expressed in the same writing or paper as in a promissory note, the ownership of the bond being registered as a means of protecting the payee against loss, necessitating a formal transfer and registration to transfer the title when the old instrument is canceled and a new one is issued. Interest is payable by money

delivery or by check sent by mail to the address of the registered holder. Notice should be given of any change in address.

Registered coupon bonds are issues the principal of which is registered, the coupons being made payable to bearer.

In practice a single bond issue may have any number of these many distinguishing characteristics, so long as they are not in conflict. When applied to specific issues the number of classes may be equal to the mathematical possibility of the several elements described in combination. The advantage of the analytical classification here used is that by classifying and defining bond characteristics the terminology may be understood in any combination used.

BONDS IN THEIR RELATION TO CORPORATION FINANCE

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Finance is defined as that branch of business which has to do with the getting and the spending of funds. A financial institution is a concern organized and conducted for the purpose of rendering service in funding operations, in exchange for which service it obtains an income. For example, the service for which a commercial bank is capitalized and equipped is to provide, in convenient form, the current funds by means of which business may be carried on; the service of a savings bank is to provide a safe and convenient form for the investment of funds saved—the form of the investment offered being an interest having credit account; the service of an underwriting syndicate is to insure the sale of issues of stock and bonds at an agreed rate, as a means of obtaining capital funds, etc. By corporation finance, it is assumed that reference is had to the funding operations of corporations.

What Are Bonds?

Bonds are one of the forms of instruments by the use of which funding operations are carried on. As an instrument, it is a contract entered into by the one desiring funds, with another having funds to invest. *The contract is one of bargain and sale.* There is no transaction which better illustrates the true character of a so-called loan than a bond issue. A so-called loan is the purchase of a promise to pay. The funds obtained on a loan is the amount for which a promisor is able to sell his contract for the future delivery of money. The amount that a promisor is able to obtain on sale of his contract for future delivery depends on the valuation placed on the promise by the investing public. Like all other sales, the price is agreed on only after a mental calculation as to whether that which is offered for sale is more valuable, to the one to which the offer is made, than the money in exchange for which it is proposed to sell.

Credit contracts are of two essentially different forms, viz.: (1) credit accounts, and (2) promissory notes. A credit account is a contract for the future delivery of money, the evidence of which is a personal memorandum made by one or both parties to the transaction, or which is evidenced only in memory. A bank account, for example, is a contract made between a customer and a bank by the terms of which the bank promises to pay a certain amount of money on demand (usually without interest), the evidence of which is a memorandum made by the bank on a "pass book" which is handed to the customer. This account is usually sold at par. A promissory note is a formal contract, the written evidence of which specifies the principal amount to be paid, the date of payment, the rate of interest, the payor and the payee, the agreement covering not only the exact terms but also the exact form of the writing which shall represent these terms. The advantages of the two forms are apparent. The credit account is most frequently used for current or demand credit transactions, while the promissory note is the more common in transactions where a definite time and rate of interest are specified or where a definite form of security is given for payment. *A bond is a species of promissory note.*

To understand properly the use of financial instruments, it is necessary to distinguish between current funds and capital funds. Current funds to a business man are his current means of purchase and of payment. It may be money or rights to draw, as on a bank. "Funds" when used in finance as a singular noun is a synonym of "cash." In business "cash" means all those forms of assets usually carried on the cash book. It includes all accounts with solvent banks, till cash and pocket money; sometimes it also includes postage stamps, and temporary advances or rights to draw on individuals to whom temporary advances have been made. Current funds is the cash intended to be used or held in reserve for the purpose of making current purchases, for meeting the amount of expenses, and for the payment of current liabilities. Capital funds is the cash which is procured or reserved for capital uses—*i. e.*, for investment in the properties and equipment that is to be permanently or continuously used in the business. Both of these classes of cash are to be distinguished from the moneys or cash in possession, but which do not belong to the company, such as trust funds. *Bonds are credit instruments commonly used to obtain capital funds.*

A bond is one of a series of promissory notes, usually of like tenor and amount, issued as evidence of a single credit agreement. Its serial issue arises from the character of the market and the purpose of its use. The purpose of a bond sale being to procure funds for capitalization, the bond contract offered, consequently, is one which has a long time to run. Since the capital resources of a business are not to be sold or realized on for the purpose of meeting expenses and current liabilities, the funds obtained for capital use must be procured in such manner that the company will not be required to repay or return the amount contributed until this may be done without forcing a sale of the permanent properties and equipment. As a means of increasing competition among prospective purchasers, the total issue is divided into small notes of equal denominations, which, for convenience and for purposes of identification, are serially numbered. The total issue being large compared with the total assets of the obligor, and the time to run being long, a favorable valuation of corporate bonds may be obtained only by giving some form of security, each bond of the same issue having common rights and equal protection against default in payment of principal and interest when due.

Principles Governing Bond Valuation

Bonds are sold for cash, but why should a purchaser of bonds exchange money for a contract for the future delivery of money? The considerations which operate on the mind of the purchaser are essentially two: (1) Rate of investment return, and (2) judgment as to whether the capital will become impaired. The rate of return is determined by a mathematical calculation based on two factors: (a) The price at which the bond is offered, and (b) the terms of the contract. A rate of return being offered which is attractive, favorable consideration involves two other judgments: (a) Judgment of the investor as to the ability of the promisor to obtain the amount promised at the time contracted for, and (b) judgment as to the integrity of the promisor, *i. e.*, on his willingness or disposition to fulfil his promise if he is able to obtain the amount promised. These two judgments with respect to the safety of his capital being favorable and the rate of return being satisfactory, the investor will buy. It is with respect to judgments as to the ability and integrity of the obligor that security has a direct

bearing. In a bond issue the contract of security is the means whereby a favorable judgment is obtained in the valuation of the notes offered for sale.

What Is Security to a Bond Issue?

A contract of security is a collateral agreement by the terms of which certain property of the debtor is transferred to a trustee, to be held, and, in case of default in the credit contract, to be sold, the proceeds to be applied to the satisfaction of the debt; but in case of the credit obligation being met then the trust is ended and the title to the property so held reverts to the debit-beneficiary.¹ Another form of contract of bond security is one pledging the paying power or money procuring ability of another as collateral to the credit promise. Such collateral promises are in the nature of endorsement or guarantee. The result of the contract of security is this: The value of the guarantee of payment or of the property pledged as security being considered sufficient to enable the creditor to obtain the amount of money promised in the credit contract, the investment is deemed amply protected. Through the collateral device known as security, both questions raised in the process of valuation are settled at the time of purchase: The question of willingness to pay (*i. e.*, of honesty) is determined by the willingness of the debtor to enter into the collateral contract of security; the question as to paying ability is determined by the transfer of property which is estimated to be of sufficient value to enable the trustee, by sale, to obtain the money with which to meet the obligation. By investment companies, personal security is less highly valued than lien security for the reason that the personal ability and integrity of the endorser or guarantor may be subject to more of the shifting conditions, to more of the fortunes and misfortunes of business, and may be less readily controlled by the creditor than the properties assigned in trust, on which a lien is given. Personal property in the form of "collaterals," with power to compel the keeping up of an agreed margin, or real property, with ample margin of valuation and with provisions against waste and prior encumbrance such as taxes, receiver's cost, etc., when made the basis for valuation, places the creditor in a position to protect his invest-

¹The creditor himself is frequently made trustee of the property of the debtor for the purpose of securing the obligation.

ment as well as to insure an agreed rate of income. It is this quality which gives to bonds their place and importance in corporate finance.

The Relative Importance of Bonds and Corporate Shares as Investments

The relative importance of the two forms of capital issues of corporations—bonds and corporate shares—is to be found in the character of the contracts themselves. The corporation is a legally constituted artificial person endowed by legislative act with power to acquire and dispose of property. The shareholders are persons (or their successors) who have contributed funds (or other property) to the corporation in exchange for a right to participate in the general control of the company and to share in dividends declared out of profits. In other words, the shareholders are the proprietors of the corporation and have a right to income from their shares, contingent (1) on net profits or surplus and (2) on the declaration of dividends out of net profits or surplus. Bondholders are persons (or their successors) who have contributed property or funds to the corporation in exchange for the corporation's promises to pay money. The bondholder as such does not stand in the relation of a proprietor; as creditor he has no rights of control over the company except to demand and enforce the payment of money in the amount and at the time promised. The bondholder's right to income is an absolute one, and, being a creditor, his claim is always prior to that of the proprietor.

But the bondholder, through his collateral agreement, may also stand in proprietary relation, both to the property of the corporation and to the corporation itself. By taking a mortgage, or the obtaining of a pledge of collateral the bondholder (as trustee), or his representative, has a legal title to the property on which a lien is given to secure the payment of an issue of bonds. In case a real-estate mortgage is given, the corporation usually retains possession, but enjoys its equity subject to the terms and control of the grant. In case collaterals are pledged, the bondholder or his trustee obtains possession as well as the legal title to the property of the corporation deposited as security. But the conditions of the collateral agreement may go further; they may give to the bondholder, or his trustee, voting power. In other words, the stockholders may as-

sign their rights to proprietary control over the corporation itself as a part of the security given for the payment of the money promised in the bond. Under a contract of personal security (endorsement and guarantee) only one of these proprietary relations may obtain. The nature of the security precludes the exercise of proprietary control over the property of the corporation; it may, however, give to the bondholder, or his trustee, the right to exercise voting power and to participate in the general direction of the corporation through control of the board.

Motives to Bond Investment

While such proprietary powers are possible, grants of voting power are seldom found in contracts of security, the only proprietorship insisted on being that which has reference to the property pledged. And this does not interfere with its use (except as against impairment) so long as interest is regularly paid and the principal obligation is met when due. This fact suggests the motive to bond investments. Generally speaking, the bond investor is not a person who wishes to charge himself with the duties and responsibilities of proprietorship in those concerns to which he contributes capital. One who has built up a large and profitable business may wish to retire. To accomplish this end, and at the same time make it possible for a successor to capitalize the business to advantage, he may sell to a corporation taking a large portion of the purchase price in first mortgage bonds. Again, an investment may be desired for an infant or a person incompetent to manage and control. For such a one an investment which secures the principal and guarantees a regular income is most attractive. A foreigner may find that competition for local issues has reduced the rate to a point lower than he cares to accept for this use of his capital. He turns to distant, perhaps to colonial enterprise, where a larger income is promised. Not being in a position to participate in control, he seeks a preferred and secured claim. He sells his capital, surrenders control and accepts a promise to pay with an assignment of property which he believes to be adequate to protect him from loss, leaving to the proprietors of the corporation the possibilities of still larger return in dividends on their corporate shares. Investment companies generally have such an absentee and inactive constituency. Savings banks and court trustees, for example, are not so much interested

in an extraordinary investment return as they are in providing an assured income sufficient to enable them to meet their responsibilities to depositors, or to beneficiaries under supervision of the courts. Such institutions are usually compelled by law to restrict their investments to prescribed issues. For this purpose bonds of the highest security and preferment are specified. The recent insurance laws of the state of New York definitely forbid investments in corporate shares and in issues of bonds secured by corporate shares deposited in trust. This legislation, however, did not emanate from a desire to strengthen the security for the investment so much as from a desire to preclude the use by the trustees of large accumulations of trust funds for purposes of corporate control.

Unsecured Bonds

A large portion of the bonds currently traded in are unsecured. Aside from those of doubtful or inferior character sold by misrepresentation or taken in settlement of existing claims, they are of two general classes: (1) the short time issues of private corporations, or (2) the issues of public corporations, such as federal, state or municipal governments. The first of these two classes of unsecured bonds appeals to much the same constituency as does one-name commercial paper. The second class of unsecured bonds is considered among the best of long time investments. Each rests on the same kind of investment judgment—the valuation of the unsecured paying ability and business integrity of the debtor. A private corporation which has a large floating debt, small net earnings, and doubtful surplus, would have difficulty in selling unsecured issues except at such a sacrifice as to make them an object of speculative buying; a private corporation whose officers and trustees had not honorably treated its creditors in the past, whatever its paying and income producing ability, would likewise have difficulty in disposing of an unsecured issue. A government, strangulated by debt, that had reached its revenue producing limit, that had suffered its credit issues to go by default, especially if it had refused to pay obligations purchased in good faith, would be unable to find a market for bonds except as specific security is given which is considered adequate protection to the investor. The reason that unsecured public bonds are preferred as investments is that the in-

tegrity of the government issuing them is unquestioned, and the debt-paying ability is unimpaired.

Legally, a government has the power to tax limited only by its charter or constitution. Economically, a government's revenue producing power is limited to the surplus profits of private business, for any attempt to levy which goes beyond the surplus net profits of business will leave no inducement for private persons to engage in business pursuits and will drive the capital already invested to jurisdictions where conditions are more favorable. In most of the American states and municipalities the legal debt and tax limit is placed far below the economic debt and tax limit. The result is that practically the only questions to be considered are political integrity and authority. It is seldom necessary to inquire into the ability of American states or municipalities to pay. As a consequence, their unsecured issues, as a class, are considered better investments, from the viewpoint of protection to principal, than the secured issues of private corporations. Many foreign states are not so fortunately situated, and to make their bonds marketable it is necessary that some specific property or form of revenue be pledged as security.

The Uses of Bonds and Corporate Shares in Current Funding Operations

Aside from their investment character to persons who do not care actively to participate in the management of business affairs (or who are incapable of such participation), bonds and corporate shares have an important use in current funding operations. Without regard to income or the character of business in which he may be engaged, one who may have made investments of this character, may go to bank, and, by depositing the securities under a collateral loan agreement, may procure current funds at a favorable loan rate to an amount approximating the market value of these securities. It is not an uncommon practice for merchants as well as investors to use a part of their working capital in the purchase of securities to operate as an invested surplus. When their stock in trade is low, and when the quarterly or semi-annual buying season occurs, these investments are employed as collateral to loans with which wholesale bills may be discounted. The same practice is common to com-

panies which have used a part of their capital to purchase corporate shares for purposes of control. The use of collaterals as a means of obtaining current funds is especially prevalent in financial districts where such funds are available for loans "on call."

Under our national banking system it is the practice of out-of-town banks to loan a large part of their money reserves to "reserve city banks." These loans are at the rate of from two to three per cent. Being subject to "call" by the out-of-town banks, the central city banks in turn offer loans to their customers "on call" secured by collateral. These call rates are often as low as one-half of one per cent, and the average rate is between two and three per cent. Not being required under the banking law to carry a money reserve of more than twenty-five per cent of the amount borrowed from other banks, the reserve city banks are able to loan to customers three times as much of their own credit as the amount loaned to them by other banks; as a consequence, there is a margin of profit to the city banks in call loans even at a lower rate than they themselves must pay for the money obtained from their banking correspondents. The constituency desiring call loans, however, is largely a speculating constituency, and for this reason the great speculating centers are the places where out-of-town banks find the best rates for loaning their surplus money reserves. So prevalent has the practice become in what is known as financial centers that, in these places, the business of banking has degenerated from the old time occupation of loaning on the business credit of merchants and manufacturers after a careful consideration of the profits or prosperity of their undertaking, and has become a species of pawnbroking—the pawns or pledges offered being stocks and bonds instead of jewelry and other personal effects. These collateral loan transactions being left largely to "loan clerks," the attention of discretionary officers is turned to the obtaining of loans from out-of-town banks, and to such operations as have come to be known as "high finance." When application is made for a personal loan no question may be raised as to the sanity of the venture in which the current funds are to be used, to the profitableness or income producing ability of the applicant, but query comes from the loan clerk "what is your collateral?" If the collateral offered is regularly traded in, the "ticker" establishes the basis of credit; if not regularly traded in, then the issue must relate itself to transactions or corporations in which the bank

has a funding interest or to issues which are duly accredited by an officer. Such a practice has in large measure removed our great commercial banks from support to a mercantile and manufacturing constituency and definitely attached them to the stock market; it has deprived the country at large of that steady influence which comes with the exercise of financial wisdom based upon commercial and industrial judgment; the condition of credit and the current funding power of the nation has become closely related to the speculative changes and manipulated movements reflected in Lombard and Wall Streets. Without a change in industrial and mercantile conditions bank credits may be suddenly expanded or reduced to the extent of hundreds of millions of dollars.

Another use of bonds in current funding operations has been incorporated into our national banking law, viz.: the investment of a large part of the banking capital of the nation in government bonds which may be pledged at par to the Treasury as collateral for issues of bank notes. Since no interest is charged on the notes received by the banks on these collateral deposits and no provision is made for the exercise of discretion on the part of the government as to when note issues may be obtained on such pledges, it is to the immediate advantage of the bank to keep its capital investments pledged, and to use the bank notes for the purchase of commercial paper, thus adding to the income received from the government on the bonds, the interest obtained on the commercial paper purchased by use of the notes. The "reserve deposit" practice has contributed materially to unsettle credit conditions, by stimulating speculation, the tying up of capital in bond collaterals, impairs the ability of the banks to meet them. This practice is largely responsible for what is known as "inelasticity" in bank credit. It has permitted the government to borrow at a low rate, but has very seriously crippled the commerce and industry of the country.

The Increasing Demand for Bonds as Investments

In relation to corporations seeking capital, bonds are most important instruments of capitalization. In relation to persons and institutions having capital to invest they afford an element of safety which does not attach to many other forms of investment. The increasing demand for bonds closely relates itself to present social and industrial conditions. During the last two decades capitali-

zation and management of enterprises have become so highly centralized that a large proportion of the people have become wage earners. The greater economies of production and distribution incident to co-operative activity under corporate organization has made it more profitable for the small merchant and small producer to take employment from a corporation than to operate an independent business. In the past, as small proprietors, those who were engaged in business had an ever present opportunity for investment in the increased capitalization of their own business, while those who had earned and saved might join in a partnership already established or start a new business. The increased economy of large production has in great measure destroyed these investment opportunities. The small proprietorship is at a disadvantage. The employee of the great corporation is placed in the peculiar position; he has increased his income and his possible savings by becoming a wage earner, but he is deprived of opportunities for investing his increased savings in properties or business within his control. Opportunity for profitable investment is being gradually reduced to corporate issues, as to the value of which the possessors of these incomes have little opportunity to judge except as these valuations are reflected in the market. At the same time the market is so largely affected by speculations that the quotations reflect manipulation and financial impulse rather than sound consideration of the producing and earning capacity of corporations whose issues are traded in. The tendency of the time, therefore, is either to speculate, which usually results in loss to the so-called outsider; or turn to the credit of certain trustees and investment companies. Among the most popular of these is the savings bank account. The savings bank is in a position to give careful consideration to the investment value of corporate issues of bonds and shares. These issues are held as an invested fund for the collateral security of the interest bearing accounts sold to savers. Another form of investment which seems to be growing in popularity is the collateral trust bond of companies which syndicates purchase and sell issues against these collaterals in denominations which are within the reach of the small buyer. This form of bond investment, under proper regulation, is capable of affording protection and at the same time of supplying the fast-growing demand for the safe employment of small

surpluses as a means of providing income to the provident. Endowment policies of life insurance companies is another form of co-operative investment which combines safety with protection against the loss of life.

Dangers to Investors in the Capital Obligations of Corporations

The underlying bonds of a prosperous corporation and the obligations of investment companies which are secured by such issues are the safest investments that may be made. Corporate shares of companies which have paid dividends for a period of years and whose financial statements show large surplus as well as continued net profits are also attractive to those who have capital to invest. These issues, however, are not without their dangers. With all the protection thrown about secured bondholders in practice, it has been found that they have suffered loss. These losses have come from one of two causes, viz.: (1) Overvaluation of the security at the time of the bond purchase, or (2) impairment of the value of the security after the bond purchase.

If the security be in the nature of endorsement or guarantee, then it is the ultimate debt paying ability of the payor and endorser or guarantor that must be appraised. If this becomes impaired before the bonds become due, it is seldom that the bondholder has any recourse. The value of personal credit and personal security may also become impaired by the negligence of the bondholder himself. The officers of the company may be permitted to use the property and credit of the corporation for their own benefit, having entered into a collateral contract, the endorser or guarantor has certain rights which must be observed unless these rights are specifically named.

If the security be in the nature of a conditional transfer of property, the valuation of the bondholder at the time of the purchase may be made on a wrong basis; or, from indifference or inability to procure the necessary information, he may sleep on his rights, allowing the property to depreciate or become wasted. Property pledged as security for collateral trust bonds may usually be valued on the basis of current market quotations, and in case the trust agreement provides for the maintaining of a margin, protection against depreciation may be afforded by substitution or supplementary collateral deposits. But even with provisions

of this kind, the company issuing the bonds may not have the additional collaterals available, and any proceeding to enforce the trust agreement may cause greater loss to the investor than the impairment which would follow if no action were taken.

In bond issues secured by real-estate or by the capital resources and equipment of the issuing company, the value of the property pledged usually depends on its earning power. Such properties may be overestimated at the time the bonds are purchased by reason of failure to obtain accurate information. Too frequently bonds are issued and sold without investigation or appraisement of property; too frequently issues are purchased by persons who buy because a particular banking house is underwriting the issue, or, what is still more fallacious, because a particular company is trustee under the mortgage. After the issue has been disposed of, bondholders frequently rest content with watching the market instead of demanding and obtaining information as to whether the property is being wasted through neglect, through failure to repair, through default in meeting requirements as to reserves for depreciation and sinking funds, or through the declaration of dividends out of capital and the gradual distribution of the available resources of the company to stockholders under color of false statements showing net profits and surplus.

Looking toward the purpose of bond issues and corporate shares in their relation to the capitalization of modern business undertakings, it is of unceasing importance that every safeguard be thrown around investments of this kind. In the industrial régime such as that which has developed within the last two decades, protection to the investor must come through some form of control over corporate management which will guarantee the integrity of financial statements, and hold corporate officers and trustees to strict account to those whose capital has been contributed to the enterprise. Legally the corporation lends itself to the highest form of control and its officers too may be held to strictest account. In theory of law, no one in proprietary relation to the company, either as stockholder or as secured creditor, may transact any of its business. Both the property and the management are placed in the hands of a group of trustees called "officers." Again the officers themselves are appointed and controlled by a second group of trustees called "directors." Neither of these groups of

trustees may legally use any of the property or conduct the business of the corporation for their own benefit, and both are strictly accountable. The protection which comes through the law of trusteeship is complete. The weakness of the position of the investor before the courts has been not lack of law, but lack of evidence. As a matter of proof, or enforcement of rights, there have been two essential elements lacking: (1) Evidence as to the character of discretion used in the management of this company's affairs by the officers, the corrective for which is found in the election and appointment of representatives, and (2) evidence as to breach of trust, the corrective for which is found in the courts. In both cases, when the evidence has been obtainable, it has come too late or has been too uncertain to be effective.

Methods by which Dangers to Investors may be Overcome

Whether the investment be in the form of bonds or corporate shares, whether the bonds held be secured by personal guarantees or by liens on specific properties, the protection of the investor relates itself directly to corporate management—to the ability and good faith of those to whom the affairs of the corporation have been intrusted. As before suggested, the nature of the corporation is such that neither may its property be held nor its affairs be managed by those who have contributed its capital; these must be intrusted to agents—to the control of officers and directors. Questions of successful management and fidelity of trust must be determined by the holders of bonds and shares from reports rendered to them. The records of the company from which these reports are made are kept by the officers—by those who are to give an account of their stewardship. Too often the only requirement made of the officer or trustee is that interest shall be met and a satisfactory rate of dividends be declared and paid.

For effective legislative requirements, looking toward the protection of bondholders and shareholders, by providing the means for obtaining evidence of the character of discretion used, and as to fidelity of stewardship, we must look to Great Britain. In America, such protection as is afforded comes largely as a voluntary act of officers or trustees who have accepted corporate responsibilities. Under the companies' acts of Great Britain, the stockholders are made responsible for bringing their own agents to account and pro-

tecting their own investment interests. At their regular meetings they are required to appoint a disinterested person to audit the accounts of the company, and to certify to the condition of its affairs, the auditor so selected being made both civilly and criminally liable for the truth or falsity of financial statements. Should the stockholders fail to elect, an auditor is appointed by the government.

In the United States, even when audits are made, the auditor is appointed by the officer or agent whose stewardship is to be reported on. The employment is therefore subject to such conditions and restrictions as may be imposed. Necessarily, the report of the auditor is rendered to the ones with whom the engagement is made. If, therefore, any comment or suggestion may appear in the report which is in the nature of criticism, such comment or suggestion may be withheld from bondholder and shareholder. A balance sheet may be certified to as correct and an income and expense account may be properly stated without disclosing facts by way of comment which are of serious moment to the investment interests.

Effort has been made to cure the evils of irresponsible corporate management, and to protect the investor from loss by the institution of public offices of corporate control. Officers of corporations are required to make sworn statements to these public agencies, and public examiners are appointed to investigate corporate resources and liabilities; but at best, these agencies cannot serve the same purpose and give the same protection as an audit which goes into questions of official discretion and efficiency as well as of fidelity, and which is reported direct to the investor instead of being filed away as a secret document in a department of state, where no action may be taken unless bankruptcy is threatened or evidence is procured of breach of trust. Adequate protection to the investor, against official incompetence, against high salaries to officials, and high prices to contractors, against depreciation of properties, against improper charges of betterments to accounts of repairs and replacements resulting in a hidden or inflated surplus, may be had only through an exhaustive audit and direct report to those who hold the proprietary interests in the company and who may administer correctives in the choice of officers and trustees to direct the affairs of the corporation without resort to laborious, and often times ruin-

ous resort to the courts. Such a law as that which has been found so effective in England would do more to correct corporate abuses and protect the integrity of corporate issues, than all the inquisitorial and restrictive measures that may be enacted. The public officer may be used effectively as a police power, but investors should be given the means whereby they may protect themselves. Such a regulation should be incorporated in every law as a condition precedent to exercise of delegated powers.